

AMERICAN ARTISAN and Hardware Record

Vol. 80. No. 14.

620 SOUTH MICHIGAN AVENUE, CHICAGO., OCTOBER 2, 1920.

October 2, 1920.

*Lovell has been first
with most of the best
improvements in
Wringer construction.*



*That's why Lovell
Wringers are first
in the field today.
Let us tell you about
Lovell construction.*

It is easy to sell

ANCHOR BRAND CLOTHES WRINGERS

on a 5 year guarantee

THAT'S why most dealers sell LOVELL ANCHOR BRAND CLOTHES WRINGERS. They know that IF anything does go wrong LOVELL will make good. You would be interested in knowing the superior points of ANCHOR BRAND WRINGER construction, the reasons why they DON'T go wrong. AND, the profit on each sale is not only SAFE but liberal.

We would be pleased to mail you our complete catalog which lists and describes the entire ANCHOR BRAND LINE. This book is printed in colors and it explains accurately and clearly the many exclusive features of construction.

Get your copy of this catalog and order your stock now.

Write today for this illustrated catalog

Lovell Manufacturing Company
Erie, Pennsylvania

The Largest Manufacturers of Clothes Wringers in the World





QUICK MEAL

Blue, Black or White
Porcelain Enameled
Coal Ranges

are the most up-to-date
ranges made.

They will last a lifetime.

Place your orders now.

Quick Meal Stove Co.

Division of American Stove Co.

825 Chouteau Avenue

St. Louis, Mo.

MAHONING HEATING SYSTEMS

"One Thousand Furnaces is a pretty good sales record"

One of our dealers before the end of this year, will have sold 1000 Mahoning Furnaces in a single city territory. Not bad, you'll say, for one dealer. And the big part of it is this dealer wouldn't sell his Mahoning Agency for the profits on a good many thousand furnaces.

Good Territory Still Open

The Mahoning is the furnace that is sold from coast to coast. We still have some mighty good territory open for progressive dealers.



A letter will secure our literature and complete agency details.

The Mahoning Foundry Co.

622 Poland Ave., Youngstown, Ohio

We maintain Eastern and Western warehouses for the convenience of the trade.



WRIGHT PIPELESS HEATERS

FOUNDED 1880
BY
DANIEL STERN
Thoroughly Covers
The Hardware, Stove,
Sheet Metal, and Warm
Air Heating and Venti-
lating Interests

AMERICAN ARTISAN and Hardware Record

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CHICAGO, OCTOBER 2, 1920.

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Water which remains stationary becomes stagnant. It loses its wholesomeness. Soon it becomes filled with green,

Growth and Prosperity

slimy things and swarming with germs of disease. Business which remains stationary also loses its wholesomeness. Gradually it ceases to be of service to the community. To remain fresh, water must be kept in motion. To continue profitable, business must grow. New customers must be acquired and more sales made to old customers.

Therefore, it is one of the first necessities of prosperity for the hardware store that some system be employed for getting names and addresses of new prospective customers, and all available data concerning their needs and desires with reference to hardware.

Old customers can be induced to increase their purchases by the right kind of selling appeal growing out of minute and accurate information concerning their wants. The labor entailed in maintaining such a system is amply rewarded in the form of greater and more frequent profits.

The hardware merchant who wants to derive a bigger income from his store should not only get as thorough and complete a list of new prospective customers as possible, together with all obtainable data, but he should study the old customers from the angle of more sales.

With this object in view, he should make it a point to collect such data concerning each customer as wedding anniversaries, birthdays, favorite games and sports as hunting, fishing, golfing, etc.

With this information classified in the list of prospective new customers and in the index of old customers, it becomes a comparatively easy matter to make his circular letters to them result in more orders.

Manifestly, it is a waste of time and post-

age stamps to send a circular about golfing supplies to a man who is interested only in fishing or hunting.

Indeed, such a procedure often results in an unfavorable impression. The man who receives the circular may say to himself: "Well, this fellow Jones ought to know that I don't give a hang about playing golf, I have told him so often enough."

On the other hand, the golf enthusiast who receives a cleverly written circular about the service and supplies of a hardware store with reference to that particular sport gets a highly favorable impression and is disposed to ponder the selling arguments presented for his consideration.

♦ ♦ ♦ ♦ ♦

Practically all the modern universities have a full four year course in the profession of librarian. At first thought, it seems a long time to spend merely for the purpose of knowing how to arrange and classify books on shelves.

Study How to Arrange Your Stock

Classification is really a science. In the matter of books, the Dewey Decimal Classification System divides all knowledge with reference to books into ten general groups. Each group is subdivided into ten other groups. These subdivisions are again divided into ten secondary groups, so that the main working classification includes ten thousand divisions or topics.

Fortunately, it does not take four years' hard study to learn how to classify articles in a hardware store. But it does need considerable attention and planning to arrange the stock in such a manner that it is orderly and easily accessible and so placed as to save unnecessary space.

The first thought to have in mind with regard to the classification of goods in a hardware store is service to the customer. Of

necessity this includes promptness in getting the goods from the shelves to the counter.

Articles which are in steady demand do not need to be displayed as prominently in the store as those for which it is important to create a desire on the part of the buyers.

Showcases and wall cases ought to be of such construction as to render easily visible the goods displayed in them. By proper arrangement even a small store can carry a big accessible stock.

♦ ♦ ♦ ♦ ♦

Selling a wire carpet beater for fifty cents or selling an electric vacuum cleaner for fifty

**Dollars or
Cents at End
of the Day**

dollars makes a considerable difference in the sum total of cash at the end of the day's business. The wire carpet beater belongs to the day of the wooden washtub and the scrub brush. In its place should be sold the electric vacuum cleaner. As a matter of service as well as of profit, sales of vacuum cleaners give satisfaction to dealer and consumer alike. Indeed, the vacuum cleaner should be as much a staple article in the modern hardware store as saws or nails.

♦ ♦ ♦ ♦ ♦

One of the differences between a merchant and a storekeeper is that the former studies

**Selling Is
Educating**

the selling points of the goods which he handles. As has been repeatedly stated, selling is a form of education. The more you know about an article, the more likely are you to bring forth some one of its many advantages or uses which will appeal to the need or requirements of a particular customer. Most of us are in the habit of being satisfied with mere surface knowledge of things. This habit is fatal to the attainment of big profits in business.

A botanist, for example, will find material enough to fill a book from the study of a rose. To the casual observer the rose is simply a flower. Its color and form appeal to the eye and its perfume is pleasing. That is as far as most of us go. But the scientist sees in the rose the history of the universe. He is able to connect it with the energy of the sun and the magic chemistry of the soil.

The ambitious merchant can find in a drop forged hammer details enough for a dozen volumes. The customer who comes in to buy a cheap hammer made of cast steel can be in-

duced to buy a high grade drop forged hammer by the merchant or salesman who has studied all the selling points of the superior article.

This implies that the merchant or salesman takes the trouble to know and understand what drop forging means and what its effect is on the molecular structure of the steel.

Indeed, the selling talent of the dealer and his clerks can be enhanced and translated into profits by taking the trouble to study the history and process of steel making in all its bearing upon hardware and craftsmanship.

♦ ♦ ♦ ♦ ♦

Human nature changes with about the same ratio of speed as a hill of granite. Fashion

**Maintain
One Price
Standard**

ions vary. Theories come and go. Plumbing, ox carts, aeroplanes, telephones, jazz music, ouija boards, bobbed hair, crinoline skirts, Lord Dunready whiskers, one cylinder automobiles, and scores of other variations have no appreciable effect upon the basic fact that people are as much interested in price as they are in quality.

The average man or woman is suspicious of a store which conceals its prices to the last minute. As a rule, people will not trade in a place which has a reputation for haggling about prices. They prefer to go to the establishment which has one price for all customers.

Too much stress, therefore, can not be put upon the advantage of marking all your goods in plain figures—not only for the convenience of your customers but in order to create the confidence on their part which is essential to your continuance in business.

♦ ♦ ♦ ♦ ♦

Brighten the interior of your store as much as possible. Pick out the manufacturer's

**Brighten
the Store.**

wall posters that have cheerful colors. Arrange them to the best effect. Human beings are powerfully influenced by the physical aspect of things. When everyone in an office, for example, wears black without a relieving touch of color, an atmosphere of dejection, nay, even of pessimism is imperceptibly developed. People who come into the office do not react to business propositions as favorably as they would if persons in that office were more cheerfully garbed.

Random Notes and Sketches

By Sidney Arnold

It doesn't pay to be too insistent, says my friend George T. Bailey, of Oliver Iron and Steel Company, Pittsburgh, Pennsylvania.

He narrates a sad example in this fashion:

When the lady next door called to complain that Tommy had been persecuting her pet cat she found the boy on the front steps.

"I want to see your father," she demanded.

"I'm afraid you can't see pa now," the boy replied respectfully.

"I intend to see him instantly," the lady insisted in a loud voice.

"Well, all right," the little fellow agreed, opening the front door.

"Walk right upstairs. You'll find pa in the bath-room takin' a bath."

* * *

I enjoyed a good laugh with my friend George B. Carr of Carr Supply Company, Chicago, Illinois, over the following bit of darky dialogue:



"Rastus, how is it you have given up going to church?" asked Pastor Brown.

"Well, sah," replied Rastus, "it's dis way. I likes to take an active part, an' I used to pass de collection-basket, but dey's give de job to Brothah Green, who jest returned from ovah thai-ah."

"In recognition of his heroic service, I suppose?"

"No, sah. I reckon he got dat job in reco-nition o' his having lost one o' his hands."

* * *

There is such a thing as too much preparedness, says my friend, Frank I. Clark, of Iver Johnson's Arm and Cycle Works, Fitchburg, Massachusetts.

He furnishes this example:

"Well, by-by, my dear. In case I am really prevented from coming home to dinner, I will send you a telegram."

Mrs. Gaydogge—"Oh, that's quite unnecessary: I've already taken it out of your pocket."

* * *

That there are two sides to every question is illustrated by this story related by my friend W. J. Birmingham of Columbus, Ohio, Treasurer Master Sheet Metal Contractors' Association of Ohio:

A police judge had before him the case of a negro woman charged with abusing her child.

The evidence was very unpleasant, and showed overwhelmingly her guilt. The situation disclosed was rather horrible.

The woman so charged did not testify, and the judge felt it necessary to make some inquiry of her to try to see what had been in her mind.

So he said to her:

"You have heard all of this evidence, have you anything to say about this case?"

She said, "Judge, I should like to ask you just one question: 'Was you ever the parent of a puffedly wuthless colored child?'"

Needless to say, the judge let her off and dismissed the court with as few words as possible.

* * *

As a rule, I try conscientiously to avoid reproducing any mother-in-law jokes in these meandering notes and sketches.

But I can not resist the temptation to present the following clipping sent to me by my friend, Adolph E. Munkel, President, Master Sheet Metal Contractors' Association of Ohio, Columbus, Ohio:

Master—"My mother-in-law is coming for a long visit tomorrow. Here is a list of her favorite dishes."

Cook—"Yes, sir."

Master—"Well, the first time you give us one of these you'll get a week's notice."

* * *

Here's a bit of humor for which I am indebted to my friend, Ike Stearns of the Michigan Safety Furnace Pipe Company, Detroit, Michigan.

The meeting was interrupted by the entrance of one who made his way to the platform and whispered excitedly to the chairman.

"Is Mr. Smith in the audience?" broke forth the presiding officer. "I am informed that his house is afire."

Forty men sprang to their feet.

"It is the house of Mr. John Smith," added the chairman.

"Thank goodness!" fervently exclaimed one man, resuming his seat.

* * *

No matter what one's trade or profession may be, it is advisable to shun the habit of asking leading questions, declares my friend Joe Stone, of Chicago office of the Stanley Rule and Level Company.

He gives a mighty good reason in this brief colloquy:

Minister—"My dear lad, what would your father say about your fishing on Sunday?"

Johnnie—"Well, last time he said, where the 'ell's yer fish?"

* * *

Even for the rough-and-tumble fellow who scorns sentiment and scoffs at all manner of preachment, there is an inescapable value in these verses of Margaret E. Sangster:

The Things Left Undone.

It isn't the thing you do, dear,
It's the thing you leave undone,
Which gives you a bit of heartache,
At the setting of the sun,
The tender word forgotten,
The letter you did not write.
The flower you might have sent, dear,
Are your haunting ghosts tonight.

The stone you might have lifted
Out of a brother's way,
The bit of heartsome counsel
You were hurried too much to say,
The loving touch of the hand, dear,
The gentle and winsome tone,
That you had no time nor thought for,
With troubles enough of your own.

Up-to-the-Minute News Siftings

*Items of Interest to Dealers Gleaned from Many Fields.
National and Local Business Plans, Problems, and Practices.*

NEW WESTERN REPRESENTATIVE OF STOVE COMPANIES

A wide experience in the stove trade, both as manufacturer and jobber, enables Charles L. Featherstone efficiently to handle the growing interests of the Engman-Matthews Range Company of South Bend, Indiana, and the Globe Stove and Range Company of Kokomo, Indiana, in the territory known to the stove fraternity as Denver and West.

Mr. Featherstone has established jobbing connections at San Francisco, California, Portland, Oregon, Seattle, Washington, and Salt Lake City, Utah.

He has established his Sales Floor at 813 North Monroe Street, Spokane, Washington. He reserves the territory adjacent to Spokane for his personal field of operation.

In addition to his activities as manufacturers' representative and jobber of the companies already named, Mr. Featherstone lists in his lines house furnishings and hardware specialties, as well as warm air heaters.

During his many years of service he has acquired numerous friends in the trade throughout all sections of the country.

His knowledge of every phase of the business, his thorough familiarity with the best methods of salesmanship and distribution, and his attractive personality warrant the prediction that he will achieve noteworthy success in his new undertaking.

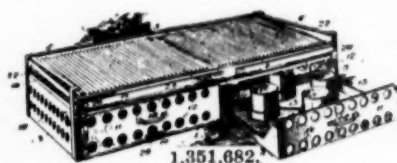
Makes Addition to Warehouse.

A two-story addition, 40x150 feet, is being erected to enlarge the warehouse of the Quakertown Stove Company, Quakertown, Pennsylvania. The estimated cost of the structure is \$75,000.

Assigns Grill Stove Patent.

Isaac C. Popper, New York City, assignor to The Theroz Company, New York City, a Corporation of Delaware, has secured United States patent rights,

under number 1,351,682, for a grill stove described as follows.



A grill stove including a body portion having perforated walls, guides at opposite sides, and an open front, a sliding grill rack, sliding drawers adopted to fit and be slid in the guides and openings, and rigid lugs for holding the rack and drawers in position when slid into place, and for guiding and supporting them when pulled out of their normal position.

Wants Address of Universal Fuel Oil Burner Company.

TO AMERICAN ARTISAN AND HARDWARE RECORD:

Can you tell me the address of the Universal Fuel Oil Burner Company.

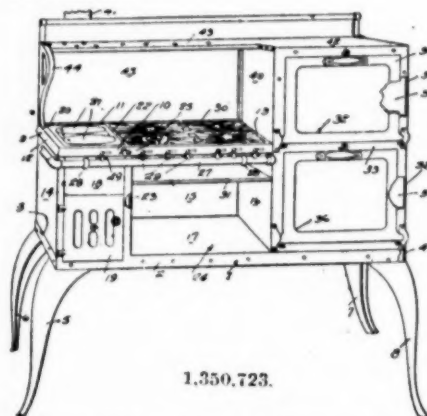
Very truly yours,

A. L. HONEKER.

Wallace, Idaho, September 25, 1920.

Procures Patent for Combined Gas and Coal Range.

Clarence R. Graham, Newark, California, has procured United States patent rights, under number 1,350,723, for a combined gas and coal range, described as follows:



A combined gas and coal range having a bottom structure with corner legs, a fire-box in one end of the bottom, a top for said box, superposed baking and broiling ovens on the other end of said bottom and spaced horizontally from the fire-box to provide a chamber having an open front and a closed back therebetween, a set of gas burners arranged at the top of said chamber, a plane grating coplanar with the said top and above the gas burners, a drip pan below the burners and forming a top for said chamber between the said box and said ovens, one of the ovens being below and the other above the plane of said burners, and a gas service pipe extending along the front of top structure and having a kindling burner to the firebox.

Contentment is never begotten by regret.

The Week's Hardware Record

*What Retailers, Jobbers, and Manufacturers Are Doing.
Latest Selling Methods. Experiences of Successful Men.*

RETURNS FROM ARMY TO REJOIN AMERICAN ARTISAN STAFF.

After three years and four months' service in the army, A. George Pedersen resumed his connections with the staff of AMERICAN ARTISAN October 1st.



Everyone is glad to have him back—not only his former associates of the staff but his hundreds of friends throughout the trade.

His smile is an asset to any business and the twinkle in his blue eyes is the unfailing signal of fellowship and good cheer.

The hard work of army service—and all agree that A. George Pedersen worked as hard as any man that wore the uniform—served only to mellow his pleasant disposition.

Mr. Pedersen volunteered for the First Officers' Training Camp May 1, 1917, and entered that Camp at Fort

Sheridan May 12, 1917.

Two months later he was commissioned Second Lieutenant Quartermaster Corps.

For a time he acted as Mustering Officer at Camp Grant, Illinois.

October 2, 1917, he reported at General Supply Depot, Jeffersonville, Indiana, and was assigned to Warehousing Branch in charge of labor and warehousing.

He planned six large outside storage areas, approximately seventy-five acres.

He was promoted to First Lieutenant February 26, 1918; and two months later was appointed Salvage Officer. In the latter capacity he organized and directed the Salvage Division.

While in this branch of the work he invented cold lacquer for black sheet iron

ware; invented new method for waterproofing large tarpaulins and tents; refinished seventy thousand field ranges, three thousand army ranges, eight hundred thousand bakepans, and one hundred thousand camp kettles.

Promotion came to him as a reward of merit June 30, 1918, when he was advanced to the rank of Captain.

Among his multifarious duties was the operation of wheelwright, blacksmith and tin shops. Also he operated the only military printing establishment which is still in existence and which has been greatly enlarged.

On December 15, 1918, he was appointed Depot Surplus Property Officer in addition to his other duties and as such was instrumental in formulating and executing plans for the disposal of over one hundred million dollars worth of supplies.

He officiated on Boards of Contract Termination, where his intimate knowledge of materials and markets proved of immense value and facilitated settlements which were satisfactory to contractors as well as to the Government. Not one settlement made on his advice was rejected by the Government.

His diversified and extensive duties were still further enlarged September 1, 1919, when he was designated as Superintendent of United States Quartermaster Retail Stores. In this capacity he planned and supervised the distribution and sale of surplus army goods in stores located at Jeffersonville and Indianapolis, Indiana, and Louisville and Lexington, Kentucky.

Although in the service Captain Pedersen had the reputation of a strict disciplinarian, nevertheless the nearly four hundred employees who were under his direction like him and considered him their friend.

New Metal for Tools Holds Keen Cutting Edge.

At the recent National Exposition of Chemical Industries a notable exhibit was that of stellite, shown by the Haynes Stellite Company, Kokomo, Indiana.

Mr. Haynes, who was the inventor of stainless steel, has found the master of steel which he calls stellite. The company claims that this metal is harder than

steel, has a more beautiful lustre than polished silver, is impervious to the action of most acids, is not affected by heat up to 1,800 degrees, is tougher at red heat than when cold, that it is not a tempered metal and the fine temper that it has can not be altered or

modified.

The first commercial field for this metal was in machine tools where it played its part during the war, and it was during the war that surgeons found that a knife of this metal carried a keener cutting edge than had ever been possible in the case of steel and that sterilizing acids and processes would not affect it. It will soon be in general use.

It is worth while to keep in mind the fact that AMERICAN ARTISAN AND HARDWARE RECORD is the only publication containing Western hardware and metal prices corrected weekly. You will find these prices on pages 42 to 47 inclusive.

Opens a Hardware Store in Gering, Nebraska.

The ideal combination in business is pleasure and profit.

There are scores of disgruntled folk who are in business for profit but who get no pleasure out of it.

It is refreshing to encounter people who get double the amount of pleasure that they do profit out of the day's tasks.

One of these happy people is A. O. Smith, who has recently opened a hardware store at Gering, Nebraska.

He has been in the hardware business fifteen years. During ten years of that time he worked as a clerk.

He likes the hardware business.

He enjoys working out problems of merchandising and gets pleasure out of serving his customers intelligently, promptly, and with genuine friendliness.

Needless to say, he is energetic. He takes a keen interest in every movement for the betterment of his community.

He has joined the other merchants in his town in preparing plans for a merchants' association to bring trade to town from the surrounding country.

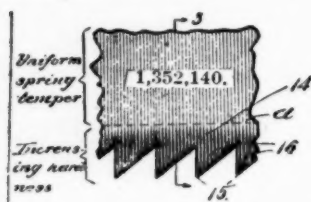
Mr. Smith is fortunate in having the cooperation of his wife who helps plan things with him for the up-building of the business.

He is especially keen about the selling value of window displays and, therefore, takes particular pains in designing this forceful form of advertising.

In addition to local newspaper publicity and window displays, Mr. Smith keeps an active mailing list which has proved to be a fruitful source of new trade.

Assigns Patent Rights for Tempered Blade.

Charles Napier, Springfield, Massachusetts, assignor to Napier Saw Works, Incorporated, Springfield, Massachusetts, a Corporation of Massachusetts, has been granted United States patent rights under number 1,352,140, for a tempered blade described as follows:



A blade having a hardened cutting edge and a body integral therewith and in a state of spring temper, joined by an edge region gradually varying in hardness between said states, whereby the hard but brittle edge is supported against permanent bending and breakage upon a strip of metal at least as hard as the body of the blade, and decreasing in hardness as the edge is receded from.

Indicates Sales Possibilities of Kitchen Cutlery.

The young housewife who has been forced into the kitchen by the shortage of domestic help during the past few years, has learned many things, among them the fact that nothing adds more to the efficiency of the household and kitchen than the utilization of good tools.

How few women, for instance, own a really suitable set of knives for the preparing of vegetables and meat?

The modern housewife should remember that her tasks are very similar to those of the professional butcher and that there are hundreds of forms and styles of meat-preparing knives in the market, all to be had at a very reasonable price and each serving a very distinct purpose.

Our professional butchers, for instance, are using beef-shavers, boning knives, brisket knives, carving knives and many others.

Each of these is used for a special part of the work and each is designed in the form most suitable and convenient for use.

A good set of kitchen knives should embrace the following selection: One large cook's knife with large blade, having a well-rounded edge running to a sharp point.

One cimeter steak knife for cutting large slices of meat or fish.

A cleaver for the heavier work.

A spatula, which is a long, flat blade used in the turning of pancakes and other such objects, also being used in connection with baking.

Two or three knives for ordinary cutting; one of these should be well pointed while the others should be of the more ordinary type.

One or two small, sharp vegetable knives will come in handy.

The selection of knives should be guided by personal taste.

Don't forget the grape fruit knives, and all the regular table cutlery, a plentiful supply of which, all set in proper order on the table, adds much to the reputation of the modern housewife.

In the making of table and butcher cutlery the American manufacturers stand head and shoulders above the rest of the world.

Patents Tubular Ice Skate.

United States patent rights have been procured by Walter T. K. Brown, Branford, Connecticut, assignor to Winchester Repeating Arms Company, New Haven, Connecticut, a Corporation of Connecticut, under number 1,352,113 for the tubular ice skate described in the following:



A tubular ice-skate, having a tube, a runner, heel-and sole-plates, tubular supports for mounting the heel-and sole-plates upon the tube, and vertical struts interposed between the said plates and runner and respectively located within the said tubular supports.

This principle of tubular supports appears to be well embodied in the patented ice skate shown in the accompanying illustration.

The man who shrinks from battle, even though the forces opposed may appear overwhelming, takes away from the strength of his comrades. Retail hardware-men should stand together.

Good Ideas for Window Display

Practical Lessons from Exhibits in AMERICAN ARTISAN AND HARDWARE RECORD Window Display Competition. How to Get More Passers-By to Come into Your Store.

WINDOW DISPLAY OF KITCHEN WARE IS PROFITABLE

Fifty years ago it would have been declared impossible to bake a cake in a glass dish.

A hundred years ago grave suspicions of communication with the Evil One would be aroused by anyone who succeeded in making glass oven ware.

a glass oven door into glass cooking utensils in the oven.

It is comparatively easy to explain the merits of this sort of kitchen ware.

Indeed, it requires hardly any verbal argument.

A window display of glass oven ware can be so arranged as to present the major portion of the arguments in its favor.



Window Exhibit of Kitchen Ware Arranged by A. J. Mohr, for Potts Only Hardware Company, Chambersburg, Pennsylvania, Awarded Honorable Mention in AMERICAN ARTISAN AND HARDWARE RECORD Window Display Competition.

In the days of feudalism the inventor of such magic ware would probably be boiled in oil and condemned to eternal torment.

Today there lingers a more or less faint trace—not of the superstition, perhaps—of skepticism regarding the practicability of glass oven ware.

Thousands of people remain who need to be convinced of the economy and usefulness of this wonderful kitchen ware.

No one doubts the advantage of being able to open the oven door and tell at a glance the progress of the food being cooked—or better still of looking through

This is effectively done by A. J. Mohr, in the window display shown in the accompanying illustration arranged for Potts Only Hardware Company, Chambersburg, Pennsylvania, and awarded Honorable Mention in the AMERICAN ARTISAN AND HARDWARE RECORD Window Display Competition.

The signs in the window of this exhibit were made of crêpe paper on cardboard. The letters were cut out and pasted on the crêpe paper. When the paste dried the letters were drawn tightly on the paper.

Stands used in the display were formed of cardboard.

Liberal use was made of cutouts furnished by the manufacturers.

This is a highly commendable feature of the display and worthy of wide imitation.

The sales of glass oven ware and other kitchen ware shown in this exhibit were many and profitable while the display was in the window. What appears to be a permanent trade was started in that class of commodities, as a result of the window display.

Begins New Window Display Competition Today.

Most of the colleges and universities throughout the country begin their fall term the first week in October.

While it is true that there are no exacting entrance examinations in the Window Display Competition conducted every year by AMERICAN ARTISAN AND HARDWARE RECORD, nevertheless it is, in its way, a school of merchandising.

The student who enters a course of chemistry can not learn that science in the first lesson.

He is required to take a step at a time.

So it is with window advertising.

The making of gainful window display may not be quite so accurate a science as chemistry, but it has its definite principles and laws of operation which can be understood and put into effect only by close study and practice.

In this school of window advertising, experience is the teacher.

It is a composite teacher—the combination of all the resultful work of retailers throughout the country.

There is an overwhelming abundance of proof to show that window advertising in conjunction with other forms of publicity is essential to big profits in retail merchandising.

Although it is necessary to study the most effective forms of window display, yet this is a field in which the individual is given the largest room for self-expression.

By placing himself at the angle of view of the average customer, the dealer or clerk who plans a window display is able to keep in mind the impressions which are necessary to be created for the sale of goods.

In the Window Display Competition carried on each year by AMERICAN ARTISAN AND HARDWARE RECORD instructions are given, plainly, clearly, and concisely, so that everyone who is genuinely interested in making progress can have no difficulty in becoming expert in this form of merchandising.

The rules and regulations governing the Window Display Competition are purposely devised to avoid technicalities and needless details.

The competition is open to all hardware retailers and their clerks, warm air heater dealers and installers, and sheet metal contractors and their employees. Read carefully the subjoined directions.

Get a good start in the contest now.

Begin to plan, design and arrange your window display with a view to winning one or all of the cash prizes.

Here are the rules. They are simple and easy to follow:

Award of Prizes.

The prizes will be awarded as follows:

First prize, \$50.00 in cash, for the best photograph and description received of window display of hardware or kindred lines;

Second prize, \$25.00 in cash, for the photograph and description second in merit;

Third prize, \$15.00 in cash, for the photograph and description third in order of excellence;

Fourth prize, \$10.00 in cash, for the photograph and description fourth in degree of worthiness.

Conditions of Competition.

The conditions of the competition are as follows:

The photograph must be accompanied by descriptions of how the window displays were arranged and the materials used. The description is important and hence should be adequate. These photographs and descriptions may be sent by mail or express, charges prepaid, and must reach this office not later than February 15, 1921. Address all photographs and descriptions to AMERICAN ARTISAN AND HARDWARE RECORD Window Display Competition, 620 South Michigan Avenue, Chicago, Illinois.

Each photograph and description must be signed by a fictitious name or device and the same name or device must be put in a sealed envelope containing the real name and address of the contestant. This sealed envelope is to be enclosed with the photograph. Contestants are permitted to enter as many photographs of displays as they please.

A Competition Committee of three will be appointed. One of them will be an expert window dresser and one an experienced hardware man. This Committee will pass upon the merits of all photographs and descriptions received, without knowing the names or addresses of the senders, and will decide the winners of the Competition.

AMERICAN ARTISAN AND HARDWARE RECORD reserves the right to publish all photographs and descriptions submitted.

Gets United States Patent Rights for a Wrench.

Under number 1,352,136, United States patent rights have been granted to Oliver R. Jones, Welland, Ontario, Canada, for a wrench described in the following:



In a device of the class described, comprising a bar handle member regular in cross-

section from end to end, a jaw-carrying member slidable on said handle from one extreme end to the other to a position when at said ends the edge of said jaw-carrying member is flush with the corresponding end of said bar handle, substantially as and for the purpose set forth.

Bolt Company Is Incorporated.

M. Lanz Bolt Company has been incorporated at Pittsburgh, Pennsylvania, with a capital stock of \$200,000 by Andrew Lanz, William A. Lanz, and Charles Lanz.

Window Display Is an Art.

The art of window display is distinctly an American development, declares *The Winchester Spirit*. Visitors from abroad frequently comment on the superiority of window displays on this side of the water. Of course, there are many dealers in Europe who have very good window displays, but they are exceptions rather than the rule.

There are many reasons for this marked difference. Probably one of the best is the fact that the United States is a newer country, constantly growing, constantly changing.

The American merchant is not the settled shopkeeper whose little store has been inherited from his father and whose trade consists of fellow townsfolk who have always been accustomed to buy at his shop.

He is rather of the type of aggressive trader who senses a certain need in a locality and establishes himself there, prepared to fill that need.

Such tactics as this demand that a man be an advertiser of the highest grade and indicate that absolute need of window displays.

Probably the main reason for America's superiority in window display is the fact that we are a nation of specialists.

America first saw the need of specialists in window display; more thought and time and skill is concentrated on window display work in America than in any country of the globe.

To be a good display man in this country, requires a considerable fund of knowledge and experience in a wide and diversified number of professions.

Take the department store window decorator. He must be primarily an artist. His knowledge of colors must be thorough.

He must always keep sense of values that will prevent him from striking a false color note in the harmonies he creates, which are to appeal to the feminine buyer. He must be able to keep abreast of the fashions in apparel, not an easy thing to do.

He must know considerable about tapestry, hangings and furniture and thus be able to create the proper background for his picture.

He must be a good stage manager so that his displays are well arranged and well lighted in the same way that any tableau is staged.

While the hardware display man is not required to know quite so much along these lines, he must still be equipped with an extensive knowledge of many subjects. For instance, he should know color.

Color in one sense is more necessary in a window display of hardware than it is in a display of dry goods. The hardware display man must be acquainted with the simpler phases of electricity.

There are many times that a motor is necessary for a moving display or a special lighting effect is desired. He must also be capable of using carpenter's tools effectively.

There are many fixtures to be made. The fixture manufacturer has made many elaborate fixtures for the haberdasher or dry goods display man but the hardware man is left to his own devices.

After such home-made fixtures are made they must

be painted and so it is necessary that the hardware display man be something of a painter and able to mix colors and apply them.

There are many times when a moving display of some sort is desired and here is where the versatile display man's knowledge of mechanics comes in. He may arrange a certain display which on trial runs so fast it is in danger of breaking the window. Then it is necessary for him to know how to adjust his pulleys and shafting to make it run slower.

In addition to all this the hardware display man should have a good working knowledge of hardware itself.

This diversified line is so far reaching and complex that it seems impossible for any one man ever to know it all and yet the display man must be able to put in displays week after week of every type of hardware and always be able to bring out their selling points to advantage.

In short the hardware display man must be versatile, willing to accept advice, able to learn and be consumed with an infinite appetite for hand work.

States Ten Principles For Hardware Clerks

I believe that a man who works for another would give a much higher grade of service to his employer if he understood a few fundamental principles, says William Feather in the *New England Hardware News*.

In the following ten points, an attempt has been made to bring out some of the factors which underlie this human relationship.

1. Your employer is in business to make a profit. Unless he makes a profit he can't stay in business. Keep this uppermost in your mind at all times.

2. Your wages are paid, not by your employer, but by your customers. Your employer simply stands between you and the customers. You always try to put on a good front when your employer is watching you—be just as alert to please the customers.

3. It costs your employer a lot more than he pays you in wages, just to have you around. He has to pay rent for the space you occupy; he has to provide light, heat, furniture, wash rooms, pencils, pens, typewriters, machinery, etc.

4. Out of your services he has to get enough to pay your salary first, and then he has to pay a host of other bills for things you never stop to think about. Not until he has met all his expenses can he receive his profit.

5. If you loaf one hour a day, your employer's profit on your work goes glimmering. When he fixes his price, he figures that you will do as much work as you can in as short a time as you can.

If you loaf when you ought to be working you are robbing him just as surely as if you took money from his safe. What is equally true, you are robbing yourself, though you may not realize it.

6. If you work on a machine, the machine loafs when you loaf. This is double and triple expense.

When you keep a taxicab waiting, the meter keeps on piling up charges. The same thing happens when

you keep an expensive machine idle. The interest and depreciation on a \$10,000 machine is at least \$4 a day. Add in the rent for the space it occupies, the cost of repairs, etc., and it probably costs your employer \$8 or \$10 a day for that machine. The charges go on whether it is used or not. When you loaf the machine loafs. Think of the money lost here!

7. Your employer doesn't expect you to spend more than a proper proportion of your wages on clothes, but if you hold a job which brings you into contact with customers he has a right to expect that your appearance be in harmony with the standards of the house. Neat and trim clothes are far more desirable than showy clothes.

8. The biggest asset your employer has is the good will of his customers. Each satisfied customer represents real money to him. He is eager to please them, to see that their wants are properly taken care of, to handle any complaints or adjustments quickly. He relies on you, as his representative, to do as he would do.

Of course, you sell only eight or nine hours of your time to your employer. The rest of the day is yours to do with as you please. But the man who hires you has a right to expect that you will give him your highest efficiency during the hours you are with him.

You cannot do this if you have had only four hours of sleep the night before, or if you manage your personal affairs so badly that you bring a lot of worries to your place of employment. Lead a wholesome natural life, in justice to yourself and your job.

9. One horse can pull more than a team of horses that refuse to work together.

Your employer is doing his best to create and maintain a spirit of cooperation in his establishment. You can help him by putting your shoulder to the wheel and taking the load over the bumps.

10. Finally, get it clearly in your mind that your employer is not the only one who makes a profit out of your work.

You get a profit yourself—the larger profit.

Any job well done fits you the better for the next job. You are not paid wages when you go to school. You pay for the privilege of being taught knowledge and discipline. The training your employer gives you is in many respects more valuable than that which you gain in school.

If you are diligent you can capitalize the experience thus gained just as you cash in on your school education.

Life and business are like an account at the bank. You can't take out more than you put in.

Will Exhibit Metal Cutting Saws in Operation

There will be an unusually interesting exhibit of metal cutting saws and files of all kinds at the booth of Henry Disston & Sons, Incorporated, of Philadelphia, Pennsylvania, in space No. 548 in Building 5 at the 1920 Convention and Exhibit of the American Foundrymen's Association at Columbus, Ohio, October 4th to 8th.

Disston Power Hack Saws and the Disston Sectional Interlocked Inserted Tooth Circular Milling Saws will be shown in actual operation.

The Disston Interlocked Milling Saw is a Disston patented design that has been developed by this company especially for cutting metal of irregular shapes, hard steel rails, risers and gates from steel castings, general structural steel work, etc.

The teeth in this saw are so arranged that six teeth are absolutely locked in place with one wedge.

This makes it possible to place the teeth very close together, doing away with chattering caused by the wide spacing of teeth in saws of other patterns.

This saw is attracting a great deal of attention and its operation at the Foundry Show will undoubtedly be of much interest to those attending.

Besides the saws in operation, Disston will show metal slitting saws, milling saws, hand and power hack saw blades, screw slotting saws, and Disston files of all kinds.

The Disston display will be in charge of Messrs. Dorrington, Bardsley and Newman of the main office, and Mr. L. L. Mather, Manager of the Cincinnati and Chicago branches.

Organizes a Hardware Company.

With a capital stock of \$20,000, the Harrisville Hardware Company, Harrisville, New York, has been incorporated by H. J. Corbett, F. H. Kimball, and J. L. Humes.

Here Is Way To Sell Paint

Painted interior walls are becoming very popular. They are especially to be recommended in homes where there are young children. We all know the havoc created by sticky small fingers upon delicate wall papers, and it's no reflection on wall paper to say it.

A good many interior decorators are prepared either to paint or paper as the customer prefers. A decorator likes to give the customer the best possible service, because he knows that a pleased, satisfied customer sends him trade.

It is a real service to bring to the attention of parents the merits of painted walls. Many people have never seen anything but a plain plaster wall or a papered wall. When a painted wall is suggested, they immediately think of whitewash or kalsomine, and will not listen to it, but show these same people a room nicely painted in gloss or flat colors, at the same time explaining that the kiddies' finger marks can be washed off it without injury, and they will often take to the idea instantly and thank the decorator for his thoughtfulness in suggesting it.

Here is a new idea of a dealer's advertisement in the newspapers he uses:

"Have you ever considered painted walls in your home while the children are small? Finger marks can be washed off without injury to the paint. Painted walls are really artistic. Drop in and let us show you some color combinations. See for yourself how pretty a painted interior can be made. Let us paint a room or two for you this spring. Then stop worrying about the kiddies' sticky fingers."

Ideal Meat Smoker, Made by Chatsworth Manufacturing Company, Chatsworth, Illinois.

A decided improvement upon the old methods of curing meat is embodied in the Ideal Meat Smoker, shown in the accompanying illustration.

This excellent and practical device is made by the Chatsworth Manufacturing Company, Chatsworth, Illinois.

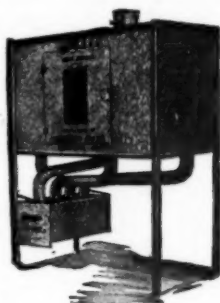
It is substantially built of sheet steel and angle iron and is said to be absolutely fire-proof.

Four pipes instead of one are used for the distribution of the smoke, thereby dividing the smoke more evenly to the meat and giving it a greater amount of radiation and cooling surface.

The result is said to be that when the smoke reaches the meat it is tempered and cooled and thus eliminates any chance of frizzling.

The Chatsworth Manufacturing Company announces to the trade that it will not have to return any orders this season, because it now has an ample supply of material on hand and has been building all summer.

Descriptive literature and terms to dealers may be obtained by applying to Chatsworth Manufacturing Company, Chatsworth, Illinois.



Get Cash for Your Goods.

Would you loan money without security or interest? asks the Members Exchange of the Wisconsin Retail Hardware Association. No, of course not. Then what about your book accounts?

Are you getting interest on those past due, and what security do you hold to guarantee their payment?

Book accounts empty your shelves. It takes cash to refill them.

The cash invested in your business is expected to earn you a living. Your book accounts do not.

You can afford to do cash business even if you do less.

New Saw Company Prepares to Establish a Plant.

Preparations for the establishment of a plant have been made by the recently incorporated Lumberton Saw Manufacturing Company, Lumberton, Mississippi. The capital stock is \$50,000. The incorporators are T. C. McClain, J. W. Williams, and others.

Trade Opportunities in Foreign Lands.

The Bureau of Foreign and Domestic Commerce, through its Special Agents, Consular Officers and Commercial Attachés, is receiving information of op-

portunities to sell hardware and kindred lines in several foreign countries. Names and locations will be supplied on request to the Bureau in Washington or its District Offices. Such requests should be made on separate sheets for each opportunity, stating the number as given herewith:

33752—A commercial agency firm in Germany desires to represent American exporters for the sale of household hardware articles, etc. Correspondence may be in English. References.

33753—An importer in Scotland desires to secure an agency for the sale of motor cycles, heating and ventilating plant, etc. Quotations should be given c. i. f. Scottish or English port. Reference.

33754—A firm of merchants in India desires to purchase and secure an agency for the sale of general hardware. Quotations should be given c. i. f. Indian port. Reference.

33760—The representative of a company in Colombia is in the United States and desires to secure an agency for the sale of agricultural implements. Correspondence may be in English. References.

33761—A mercantile firm in South Africa desires to secure agencies for the sale of office equipment, supplies, and specialties.

33762—A commercial agent in Germany desires to secure the representation of firms for the sale of American goods. Correspondence may be in English. References.

33765—A commercial agent from England is in the United States and desires to secure an agency from manufacturers for the sale of paints and varnishes, enamels, ground colors, and coach colors. He is particularly interested in all kinds of varnishes, blacks, and specialties of every description in the paint line. No reference offered.

33767—A firm in Belgium having connections in Paris desires to secure the exclusive agency for the sale of automobile accessories. Quotations should be given f. o. b. New York and c. i. f. Antwerp. References.

33771—A firm in South Africa of American importers desires to secure the agency for the sale of automobile seat covers.

33772—A merchant in Australia desires to secure agencies for the sale of hardware of all descriptions, automobile supplies and accessories, bright wire goods, builders' hardware, cutlery, lawn mowers, mechanics' tools, and wire cloth. References.

33778—A mercantile firm in Australia desires to secure exclusive agencies for the sale of cheap lines of iron mongery. Quotations should be given c. i. f. Melbourne. Reference.

33779—An old-established firm of manufacturers' representatives in England, with branches distributed throughout Europe and Asia, desires to secure the sole agency for the sale of hardware. No reference offered.

33780—The representative of a firm in Argentina is in the United States for a short time, and desires to purchase hoop iron, 26 by ½ inches; galvanized wire, 8, 9, 10, b. w. g.; galvanized high tensile oval fencing, Paris gauge, 16/14 to 19/17; and wire nails packed in boxes of 20 packets, 1½ kilo each, 1 to 3 inches long, b. w. g. 14 to 8. Quotations should be given c. i. f. Buenos Aires. Payment to be cash against documents in New York. References.

33795—A merchant in Ceylon desires to purchase bicycle supplies, such as lamps, bells, pumps, tires and inner tubes, free wheel clutches (hubs, plain and coaster), pedals, steel rims (drilled 32 by 40), and 15-gauge nickelplated spokes with nipples (plated on copper). Quotations should be given c. i. f. Ceylon port.

33796—A firm of wholesale dealers in India desires to purchase motor cycles, cutlery, etc. References.

Coming Conventions.

American Hardware Manufacturers' Association, Marlborough-Blenheim Hotel, Atlantic City, New Jersey, October 20, 21, and 22, 1920. F. D. Mitchell, Secretary-Treasurer, 4106 Woolworth Building, New York City.

National Hardware Association, Marlborough-Blenheim Hotel, Atlantic City, New Jersey, October 20, 21, and 22, 1920. T. James Fernley, Secretary, Philadelphia, Pennsylvania.

American Washing Machine Manufacturers' Association, Hotel Sherman, Chicago, Illinois, November 10 and 11, 1920. E. B. Seitz, Secretary, 10 South LaSalle Street, Chicago, Illinois.

Automotive Equipment Association, Coliseum, Chicago, Illinois, November 15, 16, 17, 18 and 19, 1920. William M. Webster, Commissioner, 1813-1818 City Hall Square Building, Chicago, Illinois.

Automobile Accessories Branch of the National Hard-

ware Association, Coliseum, St. Louis, Missouri, November 30, December 1, 2, and 3, 1920, headquarters, Hotel Statler. T. James Fernley, Secretary-Treasurer, 505 Arch Street, Philadelphia, Pennsylvania.

Southern Association of Stove Manufacturers, Evansville, Indiana, December 6 and 7, 1920. W. H. Cloud, Secretary, 216 Glendora Avenue, Louisville, Kentucky.

Texas Hardware and Implement Association, Adolphus Hotel, Dallas, Texas, January 18, 19, and 20, 1921. A. M. Cox, Secretary, 1808 Main street, Dallas, Texas.

Western Retail Implement, Vehicle and Hardware Association, Kansas City, January 18, 19 and 20, 1921. H. J. Hodge, Secretary, Abilene, Kansas.

Pacific Northwest Hardware and Implement Association, Seattle, Washington, January 18, 19, 20, and 21, 1921. E. E. Lucas, secretary, Hutton Building, Spokane, Washington.

Missouri Retail Hardware Association, Planters Hotel, St. Louis, Missouri, January 25, 26, and 27, 1921. F. X. Becherer, secretary, 5106 North Broadway, St. Louis, Missouri.

Mountain States Hardware and Implement Association, Brown Palace Hotel, Denver, Colorado, January 25, 26, 27, 1921. W. W. McAllister, Secretary-Treasurer, Boulder, Colorado.

Indiana Retail Hardware Association, January 25, 26, 27 and 28, 1921. (Place to be announced later.) G. F. Sheely, Secretary, Argos, Indiana.

Oregon Retail Hardware and Implement Dealers' Association, Portland, Oregon, January 25, 26, 27, and 28, 1921. E. E. Lucas, secretary, Hutton Building, Spokane, Washington.

Kentucky Hardware and Implement Dealers' Association, Louisville, Kentucky, January 25, 26, 27 and 28, 1921. J. M. Stone, Secretary, Sturgis, Kentucky.

Nebraska Retail Hardware Association, Hotel Rome, Omaha, Nebraska, February 1, 2, 3 and 4, 1921. George H. Dietz, Secretary, Lincoln, Nebraska.

Wisconsin Retail Hardware Association, Milwaukee, Wisconsin, February 2, 3 and 4, 1921. P. J. Jacobs, Secretary, Stevens Point, Wisconsin.

Oklahoma Hardware and Implement Association, Oklahoma City, February 8, 9, and 10, 1921. W. B. Porch, secretary-treasurer, Oklahoma City, Oklahoma.

Michigan Retail Hardware Association, Grand Rapids, Michigan, February 8, 9, 10, 11, 1921. Arthur J. Scott, Secretary, Marine City, Michigan.

The Michigan Retail Hardware Association, Grand Rapids, Michigan, February 8, 9, 10, and 11, 1921. Arthur J. Scott, Secretary, Marine City, Michigan.

Iowa Retail Hardware Association, Des Moines, Iowa, February 8, 9, 10, and 11, 1921. A. R. Sale, secretary-treasurer, Mason City, Iowa.

North Dakota Retail Hardware Association, Fargo, North Dakota, February 8, 9, 10, and 11, 1921. C. N. Barnes, Secretary, Grand Forks, North Dakota.

Pennsylvania and Atlantic Seaboard Hardware Association, Incorporated, Convention and Exhibition, Philadelphia Commercial Museum, Philadelphia, February 8, 9, 10, 11, 1921. Sharon E. Jones, Secretary, 1314 Fulton Building, Pittsburgh.

Illinois Retail Hardware Association, Hotel Sherman, Chicago, Illinois, February 15, 16 and 17, 1921. Leon D. Nish, Secretary, Elgin, Illinois.

California Retail Hardware and Implement Association, San Francisco, California, February 15, 16, and 17, 1921. LeRoy Smith, secretary, 112 Market street, San Francisco, California.

Minnesota Retail Hardware Association, St. Paul Auditorium, St. Paul, Minnesota, February 15, 16, 17, 18, 1921. H. O. Roberts, Secretary, Metropolitan Life Building, Minneapolis, Minnesota.

Ohio Hardware Association, Columbus, Ohio, February 15, 16, 17 and 18, 1921. Hotel Headquarters, Deshler Hotel, Exhibition in Memorial Hall. James B. Carson, Secretary, Dayton, Ohio.

New England Hardware Dealers' Association, Mechanics' Building, Boston, Massachusetts, February 21, 22, and 23, 1921. George A. Fiel, secretary, 10 High street, Boston, Massachusetts.

Michigan Sheet Metal Contractors' Association, Hotel Durant, Flint, Michigan, February 22, 23, and 24, 1921. F. E. Ederle, Secretary, 1121 Franklin Street, S. E., Grand Rapids, Michigan.

New York State Retail Hardware Association, Rochester, New York, February 22, 23, 24, and 25, 1921. John B. Foley, Secretary, 607 City Bank Building, Syracuse, New York.

South Dakota Retail Hardware Association, Sioux Falls, South Dakota, February 22, 23, 24, 25, 1921. H. O. Roberts, Secretary, Metropolitan Life Building, Minneapolis, Minnesota.

Panhandle Hardware and Implement Association, Amarillo, Texas, May 8, 9, and 10, 1921. Troy Thompson, Secretary, Treasurer, Dalhart, Texas.

Hardware Association of the Carolinas, Charlotte, North Carolina, May 10, 11, 12, and 13, 1921. T. W. Dixon, secretary-treasurer, Charlotte, North Carolina.

Southeastern Retail Hardware and Implement Association (composed of Alabama, Florida, Georgia and Tennessee), Atlanta, Georgia, May 17, 18, 19 and 20, 1921. Walter Harlan, Secretary, 701 Grand Theater Building, Atlanta, Georgia.

Retail Hardware Doings.

Illinois.

J. P. Sayers has sold his hardware store to George Webster at Fisher.

Indiana.

John Lowe and Will Carter have bought a hardware store at Kingman.

Iowa.

Morrell and Schulte will close out their hardware business at New Hampton.

Cherveny and Lorensen have sold their hardware store to A. J. Sevey and J. A. Beckham, at Traer.

Kansas.

E. B. Hawk has sold his interest in the Sells-Hawk hardware business to his partner, W. H. Sells, at Effingham.

L. M. Moline Implement Company of Lyons in Rice County has been chartered with a capital stock of \$25,000 by E. D. Isern, August Latamann, and W. J. Myers, all of Ellinwood.

Myers and Chandler have purchased the hardware and implement and plumbing business of J. F. Buhner of Enterprise.

J. A. Casper has sold a half interest in his implement business at Palmer and at Clinton to his brother-in-law, J. R. Anderson.

Minnesota.

Nelson Hardware Company has been purchased by Gould and Gasper at Buffalo.

Zenith Hardware Company will engage in business at Hinckley.

F. A. Murphy has purchased a hardware store at Watkins.

Missouri.

Specialty Hardware Company has been chartered with a capital stock of \$10,000. Edward A. B. Jerch, Attorney, 324-27 Central National Bank Building, St. Louis.

Grover C. Wills has sold his hardware stock in Peculiar to William H. Groh, of the W. H. Groh Real Estate and Loan Company.

Fielding Pierce recently purchased an interest in the Albany Hardware Company and is again back in the business on the west side, being associated with Robert Funk and Volley Sidens of Albany.

H. D. Skinner Lumber Company of Braymer has perfected the purchase of the A. M. Delany hardware and implement business in Cowgill.

Nebraska.

A. C. Ingram has purchased the E. J. Holmes hardware store and will continue the business at Bloomington.

J. C. Nitz has sold his hardware store to T. J. Vanderheiden at Dodge.

North Dakota.

T. F. Keating has been succeeded in his hardware and implement business at Leith by R. H. Nichols.

John L. Hagen has sold his hardware store to O. G. and J. R. Burgeson and T. E. Thoen at Milmor.

A Mr. Kromer has bought the Tony hardware store at Sanborn and will take possession January 1, 1921.

Oklahoma.

I. H. Smith has sold out his interest in the White and Smith Hardware Company at Clinton to O. S. Taylor and Percy Stowe and Henry Gayger. They will continue the store on the same basis.

Duerkson Hardware Company is now located in the building formerly occupied by the Corn Implement Company at Weatherford.

David King and Mr. Hays have purchased Waddie Hudson's large stock of hardware and furniture at Tahlequah.

South Dakota.

Thomas Eastcott and R. C. Ranes bought the interest of Albert Staehle in the Peterson Hardware Company at Mitchell.

A. D. Sponholz has opened a hardware store at Ramona.

Tennessee.

W. A. Huton will move his hardware business from Murfreesboro to Gallatin.

Texas.

Lewis Jones, hardware dealer, moved his place of business from Quannah to Wichita Falls and increased the capital stock from \$20,000 to \$40,000.

J. B. Kerr Hardware and Furniture Company has changed its name to J. B. Kerr Company and increased the capital from \$25,000 to \$35,000, at Newton.

Richard Mayfield and Ernest Boyt have purchased the T. S. Craig hardware store at Raymondsville.

Clements Harwell Company have opened a complete line of hardware and furniture at Winters.

Selling Automotive Accessories

How Hardware Dealers Can Increase Their Profits by Handling Standardized Automotive Accessories. Facts and Suggestions to Aid Them in Giving Better Service.

TIRES ARE NOT LIKELY TO BECOME CHEAPER

Ten million casings to the grave yard of lost auto tire mileage for 1920!

So enormous a wastage can not fail to exercise an influence on tire prices.

Indeed it is conservative to estimate that 50 per cent of the 40,000,000 tires manufactured this year, will be sufficiently cared for to permit them to deliver half of the mileage built into them by the makers.

The motorist who is hoping for a price cut that he may buy tires for less than present levels, is overlooking this and other factors that determine costs.

The law of supply and demand in good tires is operating against reductions and toward higher prices.

Manufacturing, overhead, and distributing expenses have already been cut to the bone by new and improved machinery methods.

"Before the war" prices already prevail among most standard makers.

Prices are lower now than they were ten years ago.

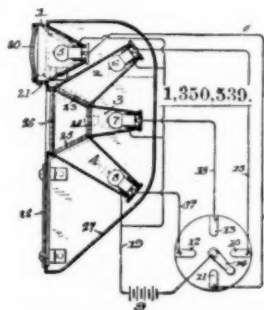
And this does not take into account that tire mileage has more than doubled, and that this cost-per-mile basis is the only real way to determine mileage.

If mileage were taken into account, actual cost per mile is less than half as much as ten years ago.

Later every one of the ten million casings prematurely junked must be replaced with a new tire.

Obtains Patent for Signal Light For Automobiles.

Walter H. Haltes, Milwaukee, Wisconsin, has secured United States patent rights, under number 1,350,539, for a signal light for automobiles described herewith:



An automobile signal comprising a casing having an oblong opening in its face and a transparency therefor; a central lamp-containing compartment arranged within the casing in spaced relation to the transparency and formed with sides diverging toward the latter; a pair of convergently related lamp-containing compartments arranged within the casing respectively above and below the central compartment and also having sides diverging toward the transparency, said pair of compartments having their wider ends interposed between the casing and the wider end of the central compartment and secured to the casing, above and below the transparency; the smaller ends of the compartments adapted

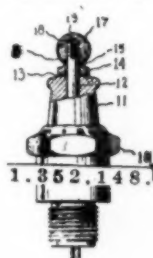
to contain sources of light; and legend-bearing transparent plates secured in the wider ends of the compartments in abutting relation with each other and the transparency.

Is Chartered to Manufacture Automobile Parts.

For the purpose of making automobile parts the C. A. Cathcart Company, Boston, Massachusetts, has been incorporated with a capital of \$99,000 by Chester A. Cathcart, Waltham, Massachusetts, Walter C. Young, Revere, Massachusetts, and Raymond H. Tift, Somerville, Massachusetts.

Assigns United States Patent Rights for Spark Plugs.

Under number 1,352,148 and 1,352,149, United States patent rights have been secured by Albert Schmidt, Flint, Michigan, assignor to Champion Ignition Company, Flint, Michigan, a Corporation of Michigan, for the spark plugs described in the following paragraphs:



In a spark plug, an insulating element and an electrode secured therein and sealed at the protruding end thereof by a sealing member having a compression bearing against said insulator about the lower and outer periphery and against said electrode about the upper and inner periphery thereof.

A spark plug comprising a hollow external shell or casing; an insulator secured in place within said casing and located at the lower end thereof and filling the same at the said lower end, so as to prevent gases from accumulating between said casing and said insulator, and which insulator extends beyond the lower or inner end of said casing; a plurality of concentrically arranged ridges formed upon the exposed inner end of said insulator, and which ridges are located beyond the end of said shell or casing; and an electrode extending through a passage provided for it in said insulator,

Plans a One-Story Machine Shop.

The recently incorporated Auto Life Tire Chain Company, Cedarburg, Wisconsin, is preparing to build a one-story machine shop, 40x112 feet, to be equipped for making motor devices for vehicles. The secretary and general manager of the company is Fred Hoya.

Advertising Help and Comment

Send Us Copies of Your Advertisements. Let Us Help You Get Bigger Results by Advice and Suggestions. The Service Is Free. Don't Hesitate to Take Advantage of It.

It is easy to understand the good qualities of the Siberia Automatic Northland refrigerators by means of the graphic advertisement of Sawyer-O'Connor Hardware Company, which is herewith reproduced from the *Enid Eagle*, Enid, Oklahoma.

The frank statement of the range of prices from \$16.50 to \$75.00 is set forth in bold type.

The good impression made by the illustration and the straightforward quotation of prices is enhanced by the reading matter which follows.

It will be noted that the appeal

ment is "us."

This is good advertising psychology.

When the Sawyer-O'Connor Hardware Company says to the prospective customer, "you should not be satisfied with just any kind of a refrigerator so long as it holds ice," it cleverly intimates that the prospective customer is not one who is likely to be content with an inferior product.

The subtle flattery—thoroughly legitimate in its way—is carried out in the further suggestion, "if you are a shrewd housekeeper."

Of course, every housekeeper considers herself a shrewd housekeeper.

This little harmless appeal to vanity serves to put the prospective buyer in good humor with the Sawyer-O'Connor Hardware Company and, therefore, in a favorable mood to consider the commodities offered to her in the advertisement.

The original of this advertisement occupied a space three columns by ten inches deep, so that it was easy to read and sure to arrest attention.

* * *

Make Advertisements Graphic.

Thoughts are pictures.

We can not think, for example, of virtue or goodness.

We have to make a more or less distinct or composite picture in our minds of virtuous or good people.

The best advertisement is the one out of which it is easiest to make pictures.

Therefore, the wording of your copy must be such as to suggest pictures of the thing.

Naturally, too, your advertisement is more resultful if you use good illustrations.

A picture of the commodity advertised is helpful in creating demand for it.

Whenever practicable, it is best to show the article in the act of being used, thus giving a clearer idea of it.

Select One of Our Ice-Saving—Food Preserving

REFRIGERATORS

Siberia Automatic
Northland



Our Prices
Range From

\$16.50

TO

\$75.00

You should not be satisfied with just any kind of a refrigerator so long as it holds ice—but if you are a shrewd housekeeper and are looking for a scientific food preserving machine that will save its initial cost many times over in economy of ice consumption and perfect preservation of foods, it will be well worth your time to investigate the merits of our refrigerators.

When You
Think Of
Hardware
Think Of Us.

Sawyer-O'Connor

Hardware Company

Phone 228
120 East
Broadway

The eight features of these refrigerators are emphasized in the smaller drawings around the central picture.

It is much less difficult to visualize the construction of these refrigerators by this process than it would be by verbal description.

of the text is directly to the prospective customer.

Sawyer-O'Connor Hardware Company does not begin by telling the reader all about itself. The first word of the explanatory text is "You."

The last word of the advertise-

Warm Air Heating and Ventilating

*Better Installations. How to Sell More Warm Air Heaters.
Reports of Progress in Warm Air Heater Research Work.
Ventilating Factories, Garages, Theaters, and Houses.*

DESCRIBES WORK OF PITTSBURGH RESEARCH BUREAU.

The current issue of the Journal of the American Society of Heating and Ventilating Engineers contains the following account of the Research Bureau established by the Society in the United States Bureau of Mines, Pittsburgh, Pennsylvania.

The reports of the Research Committee to the Society every six months cover the accomplishments of the Research Bureau fully, and Director Allen has made other reports, which have appeared in every issue of the Journal since the Bureau was started.

Entirely aside from this, however, it seems as though the unquestionable necessity of the project is so self-evident that it needs no argument to substantiate our appeals for assistance.

It is the most progressive move ever undertaken by any engineering body in the world.

Every member should have so much enthusiasm for the possibilities to be derived from the Bureau, that he simply radiates enthusiasm to everybody else. It is a project which vitally affects the health and comfort of every person.

It is so important to the ultimate health and economic welfare of the whole population that it should really be a government undertaking, as it was in Germany, instead of being fathered by a Society like ours. The work so far undertaken is as follows:

1. Organization of a working force.
2. Procuring of standard instruments and making special precision instruments.
3. Review of all the literature of the world treating subject of heating and ventilating.
4. Card-indexing subjects, authors, and results of literature and university experiments.
5. Tabulating, charting and comparing results of work done by other societies and associations, including health boards and medical societies.
6. Review of standards of commonly used apparatus, also formulate those now in common use and recording same for future investigation.
7. Review of health reports from all over the world, with a view to determining the effect of heat, humidity, dust, smoke and wind on the general health of the people and to note the comparative death rate from respiratory diseases.
8. Study of relative amount of radiation and convection from radiators of different types and sizes, in differing types of buildings and as to proper location for most effective results. This work is about completed and will completely upset all previous theories of heat transmission. Two reports already submitted.
9. The standard method of measuring the flow of air in pipes and ducts as previously adopted by the

Society has been reviewed, checked and approved by the Bureau.

10. The standard method of testing heating boilers has been reviewed and adopted to harmonize with American Society of Mechanical Engineers standards.

11. The standard sizes of pipe fittings and flanges have been reviewed and adopted to harmonize with our standards.

12. Standard sizes of mains and returns for steam and water heating will soon be taken up and this long-disputed question will be definitely settled.

13. The question as to the loss of heat from pipes buried under ground is at present under review and test. The results already indicate that past theories will be completely upset.

14. All kinds of building material will soon be under a test to determine the heat losses from buildings, when dry or wet, when the wind is blowing, etc.

15. A refrigerating plant will soon be installed to provide the possibility of duplicating any weather conditions, in an insulated room. (The insulating material and all labor to put it on was donated by a manufacturer of insulation.)

16. A study will be made of the effect of ozone machines on odors and the health of people.

17. A large project is under way to definitely determine what must be provided for infiltration when calculating the amount of heating apparatus required for either direct or indirect heating systems.

18. Combustion will be taken up later, as it applies to domestic-heating plants.

19. The most effective design for heat absorption in boilers and furnaces will ultimately be investigated.

20. Various kinds of insulating materials and pipe coverings will be tested and standardized as to heat conductivity.

21. As to what the government has done for us and what it is doing? It has provided us with a building which cost over one-half million of dollars, which is equipped with the best apparatus obtainable. We have available all the steam, heat, water, compressed air, and electricity we need in any form we may require, also the space we can use. There is a fine chemical and physical laboratory library, glass-blowing and instrument-making departments, in fact, everything necessary to equip such a plant as our work calls for, all of the highest class. We have available to assist us, the best talent in this country, among the scientists who are employed in the Bureau of Mines, backed by the authoritative recommendations of the U. S. Bureau of Standards, when required.

"Economy does not mean getting the lowest prices; it means obtaining the best results in return for the expenditure."—Jewelers' Circular Weekly.



Two Yankees Who Did the Impossible

The Story of the Smoke-burning Furnace

By DONALD L. CASH

Experiments carried on by the Warm Air Furnace Research Staff in the Engineering Department, University of Illinois, have proved that about 45 per cent of the heat generated in the average house furnace is lost. In order to overcome this waste, it is essential that the percentage of actual combustion of the fuel be increased. The problem always has been to burn smoke which usually is lost through the smoke pipe and chimney. Smoke is rich in heat elements. Mr. Cash describes how two Yankee tinsmiths have succeeded, in a large measure, in solving the problem of burning smoke and thereby extracting more heat units from a given amount of fuel. Their work is a credit to the trade.

"Burn smoke?"

"Yes," Richard Heller, of Cleveland, acknowledged in 1858, "it *can* be done, no doubt it *will* be done, though my generation will never see its accomplishment."

"There is more real heat in the smoke and gas than there is in the fuel, but the problem is to harness those waste materials inside the heater and burn them."

And so this practical artisan, though he died five years later without success, foretold with remarkable vision what was to come.

Louis Manny, then a rising young inventor and a Professor of Engineering, is quoted in an issue of "American Science" of August 8, 1887:

"I have conducted some experiments to see if coal gas and smoke can be successfully burned inside a heater.

"Mixing the heated gases with pure air has given me some encouragement, but the proportions and method of admitting the air is the puzzle.

"I do believe that about 35 per cent of the heat in coal is wasted in the gas and smoke, and I hope that, in the next twenty or thirty years, should fuel shortage occur in America, a concentrated effort may be put forth along this line, for I believe that in it lies the secret of fuel conservation."

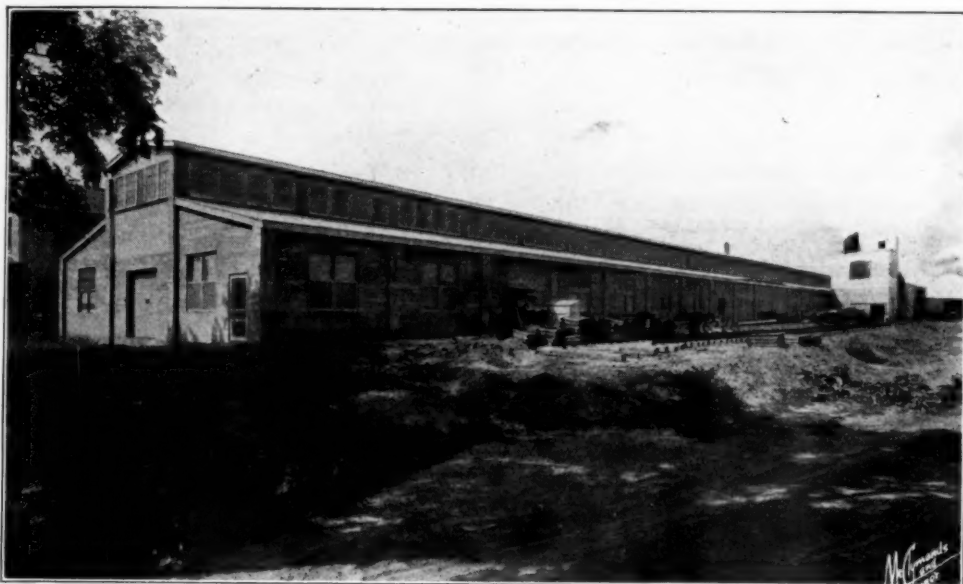
Mr. Manny's experiments, though they held closely to the correct theories, regrettably were commercial failures.

Since his time, over twenty proposed solutions of the problem have been filed with the Patent Office, none of which stood the acid tests of exhaustive development.

Nine years ago, Alex. P. Harder of Rockford, Illinois, practical tinsmith and furnace man, took up research along the same line.

He planned and devised and built and tore down and built again, expending endless energy, labor and patience on various adaptations of a burner with which he hoped to gain the goal.

Often he was near to total discouragement, when some new idea, some near-flash of success, held him



Plant of the Harder Furnace Company Just Completed. Capitalization is \$300,000. Every Part Entering Into the Building of Their Furnace is Cast in Their Own Foundry. Plans for Additional Buildings of This Type Are Now Under Consideration.

to his purpose.

A friend, Albert O. Olson, of Rockford, then became interested in the experimenting, and the two pooled their energies toward the perfection of the proposed burner, often working far into the nights impelled by the enthusiasm of approaching success.

Throughout this time, they never swerved from their "carburetor" theory, but hung doggedly to the idea that the gas and smoke *must* be pulled into a burning chamber, and mixed with air to ignite and burn them, just as gasoline is burned through an automobile carburetor, getting a maximum efficiency with the products of combustion reduced to the veriest minimum.

Then one night, one of those seemingly endless burners they had planned and hand-built on the tin-shop bench and fitted to the shop furnace as they had so many times before, did the trick and did it beyond

all their fondest dreams had ever imagined.

That was the birth of the smoke-burn furnace, eighteen months ago.

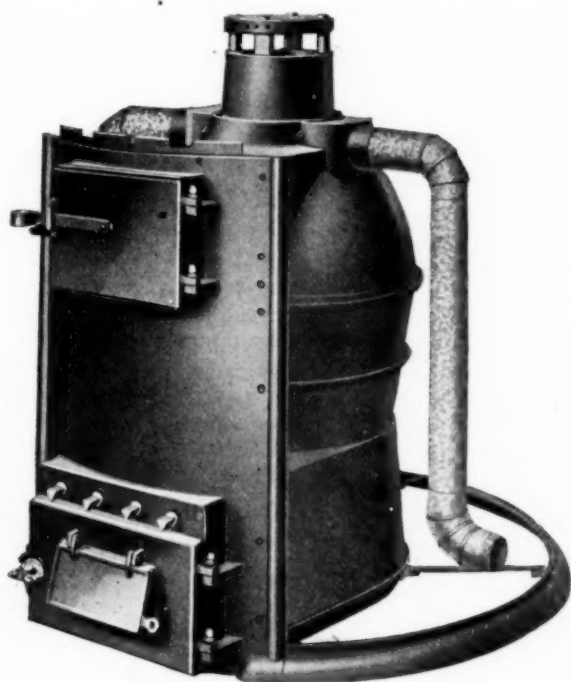
Today a big new modern plant at Rockford gives proof of what users, furnace dealers, and heating experts think and *know* about the product.

It most successfully does the things that furnace users have hoped some day some furnace might do.

Every atom of smoke and gas is burned within the furnace.

These elements are sucked into the burner by the suction of air from the intake pipes, which ignites and causes complete combustion of these otherwise wasted elements in the upper fire which travels in a circular motion around the radiator.

Chief among the advantages of this smokeless type of furnace, are these:—Cleanliness, both inside and



View of the "Smoke-Burn" Furnace Without the Casing, Showing Method of Admitting Air Through Floor Intake Pipes.

outside the house; fuel conservation and the ability to burn cheap fuel with all the advantages formerly enjoyed only by hard coal or coke.

Exhaustive tests have been made with many fuels, including cannels and lignites, with wholly satisfactory results.

Heating experts and fuel authorities see in this remarkable invention a solution of the fuel situation, and a healthy influence toward a normal trend in fuel prices.

Production efficiency is to be watched carefully in the plant of the Harder Company, so that the highest standards of construction may be carefully maintained, as well as to permit the distribution of the finished product at a slightly lower cost than one is accustomed to expect in installing a new furnace.

Defines Heat Radiation.

Radiation is defined by L. B. McMillan, member American Society of Heating and Ventilating Engi-

neers, as the transmission of heat from one body to another through the agency of a wave motion in the luminiferous ether (luminiferous ether is the somewhat intangible substance by means of which light is transmitted. It is supposed to occupy all space and is "what is left when you get a perfect vacuum").

In other words radiation is the transmission of heat by a process exactly similar to that by which light is transmitted.

In fact, radiant heat follows many of the same laws as does light.

It radiates in all directions from a hot body, as light does from a luminous one.

It travels only in straight lines like rays of light unless reflected.

It may be almost completely reflected by means of a mirror or bright surface.

It is transmitted through vacuum with even greater ease than through air. It will pass through a transparent body just as light will.

It may be completely intercepted by an opaque body even though it be very thin (however, this body itself may be heated up to such a point that it, in turn, will transmit the heat by radiation to other bodies).

Radiant heat does not heat the air through which it passes; this is illustrated by the fact that the whole of the heat we get from the sun is radiant heat, the air at high altitudes is very cold.

An interesting point in connection with radiant heat is that any object in its path tends to become heated to the same temperature as the source of heat, but is prevented from reaching such temperature by losses.

The converse is also true. A hot body radiating heat to cooler ones tends to become cooled to the same temperature as those to which the heat is radiated.

Is It Safe to Install Floor Register Without Border?

TO AMERICAN ARTISAN AND HARDWARE RECORD:

We have noticed that some furnace men do not use a border with floor registers.

We have never considered it safe to place a register in the floor without a border.

Will you please inform us either by letter or through your paper as to the opinion of other furnace men in regard to this.

Very truly yours,
WENDT AND TEICHLER.

Dundee, Illinois, September 30, 1920.

Keep a Surplus Ready.

Business insurance is the accumulation of a surplus in such form that it can be made available immediately.

Money in the bank is the most available business insurance.

It is also the easiest to understand.

Every man knows that if he has money on hand beyond his needs, he is in a stronger position to meet unforeseen contingencies than if every cent is locked up in stock, accounts, fixtures and real estate, and he is weaker for every cent he does not offset by convertible assets.

Practical Helps for Tinsmiths

No Two Jobs Are Exactly Alike. Therefore, the Sheet Metal Worker Has to Meet Each Difficulty as It Comes. Send Your Problems to Us. Let Our Experts Help You.

TRANSITIONAL PIECE, DOUBLE CURVED.

By O. W. Kothe, Principal St. Louis Technical Institute and Instructor in the David Rankin, Jr., School of Mechanical Trades, St. Louis, Missouri. Written especially for American Artisan and Hardware Record.

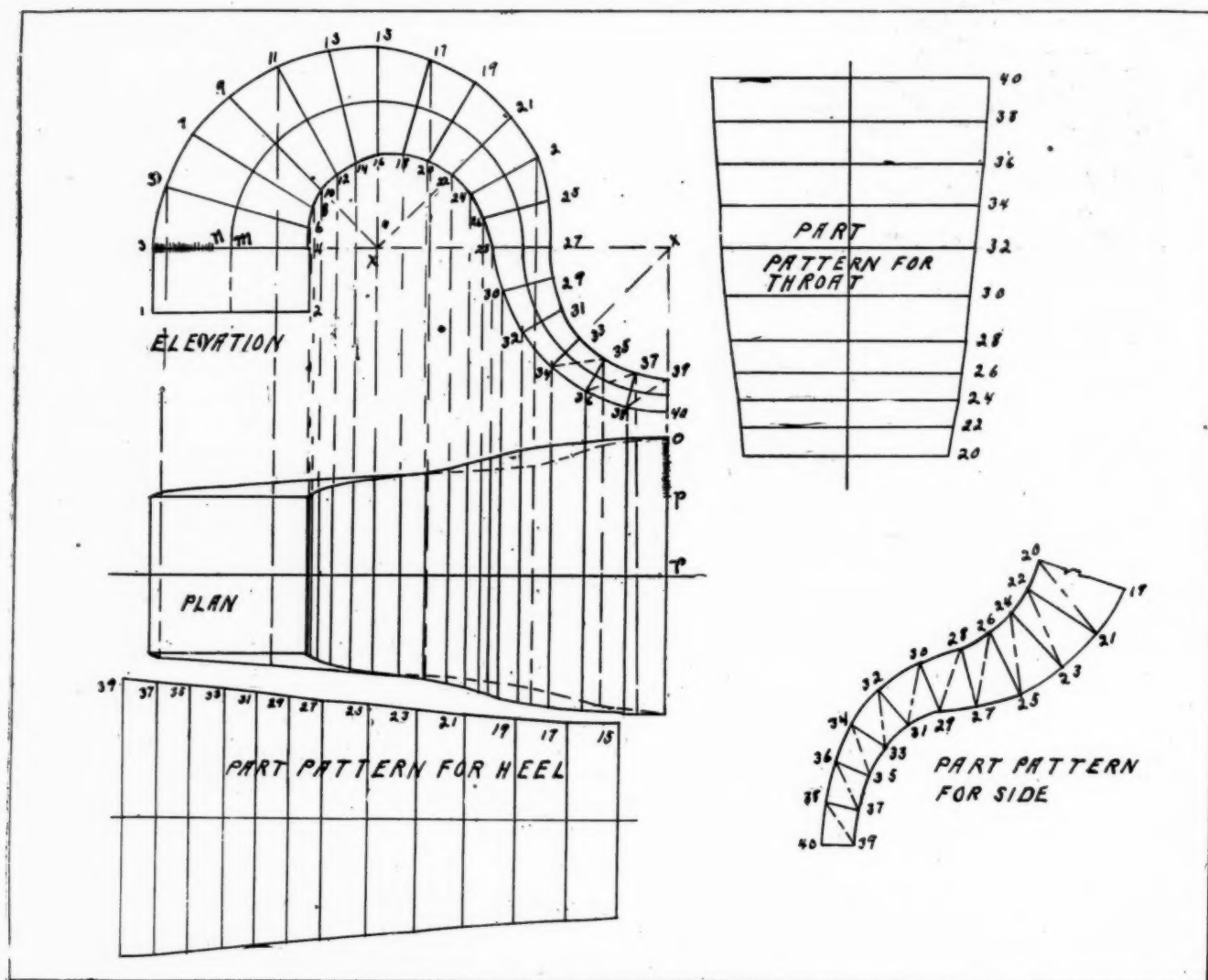
Fittings as we show in this drawing are more as a problem, than in actual use, although a person never knows what sort of fittings a person will meet with.

This is the most satisfactory way to proportion the elevation and make it uniform.

The plan is proportioned in a similar way by picking m-3 and setting it as p-p. Then divide p-o in as many equal spaces as you have radial lines.

To develop the plan outlines drop lines from all points in heel and throat of elevation, across the center line of plan.

Then from the points between p-o project over lines



Patterns for Double Curved Transitional Piece.

First describe the center line of elevation, making the centers x-x to suit. Then divide in equal spaces, and draw radial lines as shown.

To graduate the outline of elevation, pick half the width of 39-40 and set as m-n. Divide this space n-3 in the same number of equal spaces as are in the radial lines of elevation.

Now pick these spaces from -m- and set off from center line, thereby establishing the outlines for throat and heel of elevation.

until they cross similar lines dropped from elevation. This gives the intersections for tracing the side lines of plan.

To set out the patterns for throat and heel, pick the girth direct from elevation and set on a center line. Draw stretchout lines and then by means of the spaces from p-o, pick these and set on similar lines. This produces the patterns as shown.

The side pattern is practically a duplication of side elevation. The only difference is the girth spaces as

20-22-24-26, etc., from throat and 21-23-25-27-29, etc., of heel are used.

Triangle lines are picked direct from elevation. No true lengths are required as each space has only a use equal to one of the spaces between p-o and this does not change the lengths to be hardly noticeable. Otherwise the pattern is set out by the triangulating process. When finished the laps must be added for assembling.

Organize New Sheet Metal Locals in Michigan.

Gratifying success has already marked the campaign of the Michigan Sheet Metal Contractors' Association to organize the smaller towns of the state into district associations.

The first meeting of the campaign was held at Dexter, Michigan, in C. L. Baughman's hardware store. Dealers were present from Chelsea, Manchester, Brooklyn, Stockbridge, and Saline, Michigan.

A preliminary organization was formed and arrangements made for a bigger meeting October 1st for the formation of a permanent organization.

Mr. Updike of Updike and Murphy was appointed temporary chairman and instructed to get in touch with all sheet metal contractors in the territory around Dexter.

Two weeks ago another district meeting was held at St. Louis, Michigan, in which dealers from Alma and Breckenridge, Michigan, were present.

Frank E. Ederle, Secretary of the Michigan Sheet Metal Contractors' Association, A. B. Lewless and Albert Klopff of the Saginaw Local conducted the meeting.

Another gathering for the St. Louis, Michigan district is to be held October 5th, at Alma. Dealers from Ithaca, Mt. Pleasant, and Shepard are invited and it is hoped that a permanent organization will be formed.

September 17th, Frank T. Daly, President Michigan Sheet Metal Contractors' Association and Frank E. Ederle, Secretary, assisted by eight members of the Flint Local, formed a branch of the State Association in Pontiac, Michigan.

Officers were chosen as follows:

President: SARD BURLINGHAM,
Secretary: CHRIS SCHIESEWITZ,
Treasurer: OTTO GRAFF.

H. E. Doherty, President of the Traveling Salesmen's Auxiliary to the Michigan Sheet Metal Contractors' Association, helped organize the new local in Pontiac and by his geniality and good fellowship aided in the pleasant work of making new members feel thoroughly in sympathy with the purposes of the State Association.

September 28, Secretary Ederle, with the energetic cooperation of Tom (Gilt Edge) Peacock, organized a district association at Niles, Michigan, taking in the towns of Buchanan, Cassopolis, and Dowagiac.

The meeting was held in E. E. Woodford's shop. The following members were added to the association: C. R. Allen, M. L. Lundgren, M. Barnhardt, all of Buchanan; D. L. Garrett, Dowagiac; Joe Hayden, and H. Ziegler, of Cassopolis; F. D. Butts, Joe Reynolds, George Selfridge, G. C. Van Tassell, and E. E. Woodford, all of Niles.

A meeting of the newly organized Niles District Association will be held Tuesday, October 19, 1920, at which time a complete staff of officers will be elected and measures taken for active membership campaign.

Reopens Case of Pittsburgh Basing Point for Steel.

Western manufacturers of steel products have obtained a reopening of the case involving the Pittsburgh basing point for steel prices.

The Federal Trade Commission announced recently that the request of the Western Association of Rolled Steel Consumers for a rehearing and reargument had been granted.

The commission fixed November 15th as the day of the hearing.

The original application by this organization for the issuance of complaint against the United States Steel Corporation and other steel producers was dismissed by the commission several months ago following hearings extending over more than a year.

The case attracted wide attention and was described by E. H. Gary as the most important case ever brought before any tribunal.

The case involves the system by which prices of rolled steel are based on the F. O. B. Pittsburgh price plus the freight rate to destination.

Under this system the Pittsburgh price plus the freight rate from Pittsburgh to destination governs the price even though a Chicago manufacturer obtains his steel from Gary, Indiana, or South Chicago, Illinois.

Manufacturers of steel products in Chicago and other western sections have insisted that this system constituted a discrimination in favor of manufacturers located in the Pittsburgh territory.

The commission in its original findings held that the evidence presented did not warrant the overturning of this system, which had been built up through a period of many years and upon which the industrial life of entire communities is dependent.

Western Association of Rolled Steel Consumers, with headquarters at Chicago, refused to accept the findings of the commission as final and urged a rehearing.

The organization includes within its membership 700 Western manufacturers.

The decision to reopen the case was by a vote of 4 to 1, the only member of the commission voting in the negative being Victor Murdock, the chairman.

The original dismissal of the case was by a vote of three to two, Mr. Murdock being one of the three members voting for the dismissal at that time.

Has Subscribed Twenty Years to AMERICAN ARTISAN

TO AMERICAN ARTISAN AND HARDWARE RECORD:

Herewith is check for \$2 to "keep it coming." I find your journal as indispensable now as twenty years ago.

Very truly yours,

W. J. HALL.

Waterford, Ohio, September 27, 1920.

Adequate Shop Equipment of Hand and Power Tools Is Indispensable to Increased Business and Profit.

The Kind and Variety of Work Which Can Be Done in a Shop Depend on the Completeness of Its Mechanical Resources.

Written especially for AMERICAN ARTISAN AND HARDWARE RECORD, by J. C. Greenberg, Peoria, Illinois.

(Copyright 1920 by J. C. Greenberg.)

Let us take up at this time the value of mechanical power as a factor in the world's progress.

Let us have a pipe dream, and see this little old world as it would be without mechanical power.

We will not go into this to any great extent of course—life is too short to spend time reading about "what is not."

But just in a sentence I want to say that if everything were done "by hand" we would be in a sorry fix.

Let us just look at the necessary things for actual life—such as foodstuffs, wearing apparel, and the housing problems.

If it were not for machinery, we simply could not exist.

When you have time just figure this out for yourself.

I will, however, bring this matter before you in the light of your own business, and the point of view of your own experiences as a sheet metal man.

Just what would you do without machinery and time-saving devices necessary to your own business.

How would you get along?

It is well established fact that if it were not for the different kinds of mechanical tools that have been invented for your benefit you would be a back number.

Your progressiveness as a sheet metal man depends on the kinds of tools that you have at your command.

Let me prove this to you.

Suppose that all the tools you had were a firepot and a soldering iron.

All you could possibly do would be to mend wash boilers and tea kettles.

That would be the extent of your usefulness.

Suppose you have in addition to these tools a cornice brake, then you would be fit for cornice work.

This one tool added to your shop broadens your possibilities, and you are in shape to make more profit.

If you add to this a set of forming rolls, you would increase your possibilities.

Let us keep on and add a stove pipe machine, a

crimper and a beader, and a flanging machine.

In fact, if you had a fully equipped shop you would be in shape to tackle any kind of sheet metal work and do it perfectly because you have the right kind of mechanical power.

Here is how it works out:

If your shop is only ten per cent equipped, you as a sheet metal man are only ten per cent efficient, and lose ninety per cent of the possibilities.

Please read this sentence again—you lose ninety per cent of the possible work, and as you lose this great percentage—the profit goes with it.

If you are fifty per cent equipped, you are only fifty per cent efficient.

The worst part of this is that the public knows just exactly what you can, and what you can not do.

If you are not equipped, you do not even get a look in on the job that takes the tools you have not got.

Now tell me—does it pay to ramble through life as a sheet metal man, and be only partly equipped?

The ten per cent man gets the dross, and the well equipped man gets gold—his bank book proves this.

I will grant you that

you have money in the bank, and it is all profit.

I'll grant you that "you have made out pretty good without good equipment," and that you are still "getting away with it."

That does not prove that if you were well equipped you would not have more money in the bank.

The dollars in the bank do not do your work. The dollars in the bank can not hold a job you can not do because you are not equipped.

Suppose you were brought face to face with a real piece of sheet metal work that required such tools that you did not have, and you told the man who has the job to give: "I have not the tools to do this job, but I have money in the bank," what would happen do you suppose?

The customer would say that you were crazy.

So in order not to be put into the crazy class, you must refuse the job.

Bricks can not successfully be laid with a toothpick. The amount of mortar which one could pick up on the broad end of a toothpick would not cover much more than a quarter of an inch square of a brick. It probably would take sixteen or seventeen hundred years to lay the brick wall of an ordinary garage by this method.

In other words, adequate tools are necessary for good and efficient handling of materials. Particularly in the sheet metal trade, labor-saving shop equipment is of prime importance both as regards greater profits and more uniform accuracy of products.

On the other hand, suppose you are not able to flash a bank book, and you read this article and say, "It is all right to talk tools, but how can a fellow buy tools without money?"

Your problem then is "How to get the money," isn't it?

Well, in answer to this I will ask you a question:

"How did you get the money to buy the few tools you now have?"

You see, you used the few tools for few jobs, and realized few profits.

With few profits, you could not afford to buy many tools.

Your few profits were the effect of poor equipment.

You were not equipped for big things.

The real cause is the lack of good tools and the effect is poor profits.

You see now why you are poor and can not afford to buy the things you like?

However, if you are a business man, I believe you have good sense.

Here is the remedy:

It is as simple as A B C.

Take a lesson from a baby who tries to learn how to walk.

First he creeps. Then he is able to stand "all by himself" and pretty soon he is able to take a few steps.

Then before he knows it he can walk, and then run. This is nature.

You who are not equipped are still babies in your possibilities. Get one tool, it is equivalent to being able to stand all by yourself.

Then as this tool earns for you the profit, add another tool and be able to take a step.

You now have two tools to make profits from two different ways.

Two ways bring profit twice as quick as one way.

Then add another tool and learn to walk.

Pretty soon you will be able to run after business with the best competitor in your town.

You will be his equal because you have the tools with which to do that which is required.

After all, it is the tools that makes a sheet metal shop. Tools mean ability to construct, to build and to do. And you get paid in profits for what you do, not what you wish you could do.

Tools are the mechanical brains out of which service is manufactured which gives satisfaction.

You may be ever so clever from the mechanical end. You may have a thousand diplomas for good and useful knowledge, but if you have not the tools with which to bring into existence the things you know, where are you?

Necessity is the mother of invention. Great minds found it necessary to invent modern tools to answer the modern demand.

Things are done differently today than they were done fifty years ago.

In these days of progress, accuracy and speed are demanded from everybody, and you as a sheet metal worker are among those of whom accuracy and speed are demanded.

A machine, or a modern tool is made to render accurate and speedy work.

Here is the right way to size this situation up. Accuracy and speed mean right and quick.

If you can perform a thing with the least amount of work, and with more certainty, you save time, money and labor.

If you save these expensive costs of production, your overhead is less, and you earn more profit.

Forget the old idea that you are getting by, and saving money.

Don't save money till you have the equipment to earn it with.

When you have the equipment then you can save more speedily, and in bigger amounts.

Go to your banker and ask him whether I am right, he will tell you the same thing, because he knows the value of mechanical power.

He uses it in his bank to save money.

Why is an adding machine? Why is a typewriter? Why is a telephone? Why is a fountain pen? Why do people invent these things if they are not good?

It shows by usage that the proper kind of tools are essential to success.

If they are good, you need them, do you not? If they are bad, they would not make them, because no one would buy them.

So you can see that right kind of tools is essential to successful business.

To prove this, I will give you a test.

You can try this at home in your own town.

Go to your banker, and tell him that you want to borrow money for three things, namely, a home, an automobile, and some equipment for your shop.

I'll wager anything you say, against nothing, that he will give you money for the equipment for your shop, and will turn down the home and automobile.

Here is the reason:

Your equipment will enable you to earn profit to buy the home and automobile, but without proper equipment you can not possibly have either, because you are not fixed to earn large enough profits to pay for them.

This is true reasoning, and logical arrangement of facts.

You can not argue this point, unless just for the sport of being stubborn. But if you take this seriously, you can see the facts as plain as daylight. It is a case of "no checky, no washee," no equipment, no production.

How, on the other hand, can you expect to hire good mechanics and keep them if you have not the proper tools with which they can do right kind of work?

Will an ambitious mechanic be content with a one horse shop? Not if he has any sense in his head.

He has pride that is born of honest craftsmanship, and he will not abuse it by working where there are no tools with which to work.

A good mechanic delights in doing a perfect job, and it goes against the grain to be handicapped by a limitation on his ability as a craftsman in sheet metal.

It really insults his intelligence. Put yourself in

Adequate Shop Equipment of Hand and Power Tools Is Indispensable to Increased Business and Profit.

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Your progressiveness as a sheet metal man depends on the kinds of tools that you have at your command.

Let me prove this to you.

Suppose that all the tools you had were a firepot and a soldering iron.

All you could possibly do would be to mend wash boilers and tea kettles.

That would be the extent of your usefulness.

Suppose you have in addition to these tools a cornice brake, then you would be fit for cornice work.

This one tool added to your shop broadens your possibilities, and you are in shape to make more profit.

If you add to this a set of forming rolls, you would increase your possibilities.

Let us keep on and add a stove pipe machine, a

crimper and a beader, and a flanging machine.

In fact, if you had a fully equipped shop you would be in shape to tackle any kind of sheet metal work and do it perfectly because you have the right kind of mechanical power.

Here is how it works out:

If your shop is only ten per cent equipped, you as a sheet metal man are only ten per cent efficient, and lose ninety per cent of the possibilities.

Please read this sentence again—you lose ninety per cent of the possible work, and as you lose this great percentage—the profit goes with it.

If you are fifty per cent equipped, you are only fifty per cent efficient.

The worst part of this is that the public knows just exactly what you can, and what you can not do.

If you are not equipped, you do not even get a look in on the job that takes the tools you have not got.

Now tell me—does it pay to ramble through life as a sheet metal man, and be only partly equipped?

The ten per cent man gets the dross, and the well equipped man gets gold—his bank book proves this.

I will grant you that

you have money in the bank, and it is all profit.

I'll grant you that "you have made out pretty good without good equipment," and that you are still "getting away with it."

That does not prove that if you were well equipped you would not have more money in the bank.

The dollars in the bank do not do your work. The dollars in the bank can not hold a job you can not do because you are not equipped.

Suppose you were brought face to face with a real piece of sheet metal work that required such tools that you did not have, and you told the man who has the job to give: "I have not the tools to do this job, but I have money in the bank," what would happen do you suppose?

The customer would say that you were crazy.

So in order not to be put into the crazy class, you must refuse the job.

Bricks can not successfully be laid with a toothpick. The amount of mortar which one could pick up on the broad end of a toothpick would not cover much more than a quarter of an inch square of a brick. It probably would take sixteen or seventeen hundred years to lay the brick wall of an ordinary garage by this method.

In other words, adequate tools are necessary for good and efficient handling of materials. Particularly in the sheet metal trade, labor-saving shop equipment is of prime importance both as regards greater profits and more uniform accuracy of products.

On the other hand, suppose you are not able to flash a bank book, and you read this article and say, "It is all right to talk tools, but how can a fellow buy tools without money?"

Your problem then is "How to get the money," isn't it?

Well, in answer to this I will ask you a question:

"How did you get the money to buy the few tools you now have?"

You see, you used the few tools for few jobs, and realized few profits.

With few profits, you could not afford to buy many tools.

Your few profits were the effect of poor equipment.

You were not equipped for big things.

The real cause is the lack of good tools and the effect is poor profits.

You see now why you are poor and can not afford to buy the things you like?

However, if you are a business man, I believe you have good sense.

Here is the remedy:

It is as simple as A B C.

Take a lesson from a baby who tries to learn how to walk.

First he creeps. Then he is able to stand "all by himself" and pretty soon he is able to take a few steps.

Then before he knows it he can walk, and then run. This is nature.

You who are not equipped are still babies in your possibilities. Get one tool, it is equivalent to being able to stand all by yourself.

Then as this tool earns for you the profit, add another tool and be able to take a step.

You now have two tools to make profits from two different ways.

Two ways bring profit twice as quick as one way.

Then add another tool and learn to walk.

Pretty soon you will be able to run after business with the best competitor in your town.

You will be his equal because you have the tools with which to do that which is required.

After all, it is the tools that makes a sheet metal shop. Tools mean ability to construct, to build and to do. And you get paid in profits for what you do, not what you wish you could do.

Tools are the mechanical brains out of which service is manufactured which gives satisfaction.

You may be ever so clever from the mechanical end. You may have a thousand diplomas for good and useful knowledge, but if you have not the tools with which to bring into existence the things you know, where are you?

Necessity is the mother of invention. Great minds found it necessary to invent modern tools to answer the modern demand.

Things are done differently today than they were done fifty years ago.

In these days of progress, accuracy and speed are demanded from everybody, and you as a sheet metal worker are among those of whom accuracy and speed are demanded.

A machine, or a modern tool is made to render accurate and speedy work.

Here is the right way to size this situation up. Accuracy and speed mean right and quick.

If you can perform a thing with the least amount of work, and with more certainty, you save time, money and labor.

If you save these expensive costs of production, your overhead is less, and you earn more profit.

Forget the old idea that you are getting by, and saving money.

Don't save money till you have the equipment to earn it with.

When you have the equipment then you can save more speedily, and in bigger amounts.

Go to your banker and ask him whether I am right, he will tell you the same thing, because he knows the value of mechanical power.

He uses it in his bank to save money.

Why is an adding machine? Why is a typewriter? Why is a telephone? Why is a fountain pen? Why do people invent these things if they are not good?

It shows by usage that the proper kind of tools are essential to success.

If they are good, you need them, do you not? If they are bad, they would not make them, because no one would buy them.

So you can see that right kind of tools is essential to successful business.

To prove this, I will give you a test.

You can try this at home in your own town.

Go to your banker, and tell him that you want to borrow money for three things, namely, a home, an automobile, and some equipment for your shop.

I'll wager anything you say, against nothing, that he will give you money for the equipment for your shop, and will turn down the home and automobile.

Here is the reason:

Your equipment will enable you to earn profit to buy the home and automobile, but without proper equipment you can not possibly have either, because you are not fixed to earn large enough profits to pay for them.

This is true reasoning, and logical arrangement of facts.

You can not argue this point, unless just for the sport of being stubborn. But if you take this seriously, you can see the facts as plain as daylight. It is a case of "no checky, no washee," no equipment, no production.

How, on the other hand, can you expect to hire good mechanics and keep them if you have not the proper tools with which they can do right kind of work?

Will an ambitious mechanic be content with a one horse shop? Not if he has any sense in his head.

He has pride that is born of honest craftsmanship, and he will not abuse it by working where there are no tools with which to work.

A good mechanic delights in doing a perfect job, and it goes against the grain to be handicapped by a limitation on his ability as a craftsman in sheet metal.

It really insults his intelligence. Put yourself in

his place and see what you would do in such a circumstance.

Suppose you were to get employment in a shop which was ill equipped, and during the day you had a job to make which could only be made with a certain tool which your boss did not have, and you were forced to do the job by hand, and when the job was finished, you looked at a "crippled attempt" to do something good.

What would you do?

You would gather up your tools, and tell the boss that you were too good a mechanic to waste time in an empty shop—and go to a real shop where you could have pride in your work.

This is being done everyday right in your own town.

This is why the well equipped shop has the best workmen, and the unequipped shop must take what is called the overflow, or second choice.

Pick up the AMERICAN ARTISAN AND HARDWARE RECORD; look at the advertisements, and get a line on the tools you need right now.

Necessary ones to the doing of efficient work. Improve, progress, compete!!!

The advertising columns are full of such advertising matter which tells you all about the tools you need.

The manufacturers are shouting to you every week about their products, but you say to yourself that you are "getting away with it" and do not need tools.

It is the mistake of your life, and here is the proof:

If there is a better equipped shop in your town, you have a competitor in that shop, but if you are not equipped, the other shop has no competitor in you, because you are not in his class.

He does not worry, but you do—you must worry because he gets all the business.

Yes, sir! You are a dead one without proper tools.

Mechanical power is your only salvation.

Writes About Zinc Roofing.

TO AMERICAN ARTISAN AND HARDWARE RECORD:
Gentlemen:

Your article, "Outlines the Possibilities of Zinc Roofing," page 38 in your issue of September 11, has attracted my attention, as I in years past have had considerable experience with sheet zinc as roofing material.

I have 25 years' experience in the roofing game, and when eleven years ago I came to the United States I greatly wondered, and still do wonder, why zinc isn't used more for roofing in this country, as it has advantages over galvanized iron, which if generally known, soon would put it in the lead.

From my experiences I have gathered that zinc, as rightly stated by Mr. C. W. Martin, President of the American Zinc Products Company, is better, and more lasting material for roofing, than is galvanized iron.

I have personally examined zinc roofs thirty to sixty years old, and have found them in better condition than galvanized iron roofs, which had been exposed ten to twenty years only.

Some have asserted that zinc would not stand the cold of a Wisconsin winter.

For instance, I will take you to Denmark, Europe,

where zinc is mainly used for roofing, and successfully so.

If you doubt the severity of the Danish winter, just try one.

When exposed to the sun heat, a zinc roof does not expand and pull lose, as does the galvanized iron roof.

As to cost, it is an easy matter for any one having had experience with both kinds of roofing to show that zinc roof can be applied with less expense, as for labor, etc., and makes by far the best and most permanent roof.

Yours very truly,

KARL K. KOKBORG,

Kokborg Retinning Works.

Richland Center, Wisconsin, September 28, 1920.

Moves Factory to New Site.

For greater convenience of production and enlargement of facilities, Charles A. Hones, Incorporated, 91 Noble Street, Brooklyn, New York, has moved his factory to 123 Grand Avenue, Baldwin, Long Island, New York.

Charles A. Hones, Incorporated, manufactures the "Buzzer" line of automatic blast gas soldering furnaces, soft metal furnaces, burners, and special appliances.

Patrons of the Company are assured of a continuance in the new location of the excellent service and reliable products which have heretofore characterized the firm's dealings with them.

Discusses Reserves of Lead.

In discussing the abnormal situation in lead which has made it possible to import large tonnages of foreign lead notwithstanding the high protective tariff of 25 per cent ad valorem, through the failure of the domestic output to keep step with the demand, the Engineering and Mining Journal says in part as follows:

"In connection with the decreased production in the United States, it is pertinent to consider if there is not some basic reason underlying this broad trend in the industry other than labor and transportation embarrassments, and if it may not be that the domestic resources are smaller than has been assumed and whether a pinch of easily worked reserves is not actually being felt.

"Glancing at production figures for the last few years, it is noticeable that the great lead-producing centers in the United States, Southeastern Missouri, Idaho, Utah, and Colorado, were easily able to meet the intense war demand, and, in fact, have readily responded to conditions in the industry, and give the impression of being highly flexible in productive capacity.

"It has only been in the last year that production has failed to keep pace with demands placed upon it.

"Even though the figures indicate that nothing is inherently wrong with the lead reserves of the country, it is interesting to consider the contrasted position of the large copper deposits, with well-developed reserves, and those of lead.

"Lead deposits are not gigantic low-grade occurrences, and the success of a lead-mining enterprise often hinges upon a metallurgical ability to separate the closely related metal, zinc, from the ore.

"Flotation and improvements in the treatment of ores have worked wonders in increasing available lead and zinc reserves throughout the world.

"Furthermore the lead bonanzas have been worked out, and it is becoming increasingly more costly—leaving aside the question of present high labor and supply cost—to produce lead."

Regarding the attitude of labor as it affects the output of lead the same article says:

"The Summer and Fall seasons are always trying upon the mining operations of the country, as labor has a tendency to migrate to the farms and harvest fields, where the wages are, in these days, better than in the mines and where a more healthful occupation can be followed.

"Practically all the lead producers are complaining about this attitude on the part of labor, and no doubt could speed up production greatly if they had a representative share of workers.

"A solution to this pressing problem of mine operation, which recurs yearly in periods of agricultural prosperity, would be most welcome."

Announces Change of Officers.

The Louisville Sheet Steel Company, organized a few months ago at Louisville, Ohio, announces the resignation of H. L. MacKenzie, as treasurer, general manager, and director.

He is succeeded by J. W. Lucas, who has been secretary of the company from the time of its organization.

Mr. Lucas has been elected treasurer to fill the unexpired term of Mr. MacKenzie.

Work on the plant of the Louisville Sheet Steel Company is progressing rapidly. The plant is expected to be in operation about the first week of November.

Issues Instructive Booklet for Radiator Repairs.

Armed with the experiences of a practical mechanic and clever inventor the booklet presented to the trade by the International Radiator Company, 1507 South Michigan Avenue, Chicago, Illinois, is a library in itself.

Its title is "The Construction and Repair of Automobile Radiators."

It is written by E. E. Zideck, Superintendent of the work shop and mechanical department of the international Radiator Company.

This valuable booklet gives complete instruction covering equipment and workmanship.

It is, in effect, a comprehensive textbook of the principles of construction and repair as well as a clear and concise manual of practical directions for the mechanic who engages in the repair of automobile radiators.

This is a department of sheet metal work which offers opportunities for big profits.

The sheet metal worker of average intelligence can learn all the necessary things about this class of work with the help of Mr. Zideck's booklet, which can be had upon request to the International Radiator Company, 1507 South Michigan Avenue, Chicago, Illinois.

Plainly, the more a mechanic knows about his trade, the better are his opportunities for advancement.

It is, therefore, to the interest of every sheet metal worker and of every owner of a sheet metal shop to give serious consideration to this business of automobile radiator repairs.

Sheet Zinc Is Easy to Solder.

Sheet zinc is one of the easiest metals to solder, but the operator must be familiar with his work.

Most failures in the attempt to secure joints of the desired strength and quality, where sheet zinc is concerned, are due to overheating the metal.

Too long an application of the soldering iron is often responsible for unsatisfactory results.

Only a quick pass of the soldering iron over the metal is needed to produce a sound joint.

If the contact is prolonged the zinc may melt or its internal structure become so changed by over-heating as to produce a weakening of the metal.

Sheet zinc melts at a temperature of 786 degrees Fahrenheit.

It is usual to heat the soldering iron until it becomes a dull red, and that is sufficient to perform the soldering of joints of sheet zinc.

Solder a half-and-half grade is suitable; but preceding the actual operation, a "cut acid" fluxing solution, or a solution of zinc chloride acidulated with muriatic acid, should be applied to the metal being prepared for the work.

Care must be exercised to insure the sheet zinc being first free from dirt or grease, particularly along the line to be soldered, and the seam surfaces must be in perfect contact.

Shows Method for Repairing Broken Belting.

Broken belting can be reunited by the use of chrome glue. With a lap of four or five inches, the reunited part is apparently as firm as any part of the band, though it is well to take the precaution to tack down the ends of the lapped pieces with a few stitches of stout thread. The chrome glue is prepared as follows:

Take one hundred parts glue, soaked twelve hours in water, then pour off the remaining water, melt the glue, add two per cent of glycerine and three per cent of red chromate of potash, melting them with the glue. This mixture, thinned by warming, is applied to the lapped ends after having been roughened with a rasp, and then placed between two hard wood strips in a vice and well pressed. Leave the lapped ends for twenty-four hours in the vice to become thoroughly dried.

Which brings the most satisfaction, the weariness that comes of honest work, honestly done, or that tired feeling reminiscent of wasted hours.

Instructive Notes and Queries

The Service of This Information Bureau Is Free to Our Subscribers and They Are Urged to Use It Freely.

TELLS HOW TO PREVENT RUST

Boiled linseed oil will keep polished tools from rusting if it is allowed to dry on them.

Common sperm oil will prevent them from rusting for a short period.

A coat of copal varnish is frequently applied to polished tools exposed to the weather.

* * *

Special Soldering Coppers.

From George J. B. Wright, Twelfth and Main Streets, Orange, Texas.

Where can I purchase soldering coppers with hose and attachments for Prest-O-Light tanks.

Ans.—Automotive Electric Service Corporation, 118 East Thirty-third Street, Chicago, Illinois.

Slate Roofing.

From N. M. Truxell, Des Moines, Iowa.

Will you kindly advise where I can purchase roofing slate?

Ans.—Auld and Conger Company, 942 Prospect Street, Cleveland, Ohio; Wagner Brothers, 1010 Diversey Parkway, Chicago, Illinois; Robert L. Jones Slate Manufacturing Company, Delta, Pennsylvania.

Roof Flanges.

From John F. Cartwright, 224 Main Street, Bowling Green, Kentucky.

Please advise where I can obtain sheet metal roof flanges to be used on tents.

Ans.—H. E. Hessler Company, Syracuse, New York; Bullard Specialty Company, Tiffin, Ohio; Prier Brass Manufacturing Company, Kansas City, Missouri; Milwaukee Corrugating Company, Milwaukee, Wisconsin; Berger Brothers Company, 229-237 Arch Street, Philadelphia, Pennsylvania.

Basement Ventilators.

From John F. Cartwright, 224 Main Street, Bowling Green, Kentucky.

Kindly tell me who makes basement ventilators. These ventilators extend into the ground, through the wall, and underneath the floor. They have revolving caps which come up above the ground level.

Ans.—Batterman-Truitt Company, 736-38 West Monroe Street, Chicago, Illinois.

Warm Air Furnaces For Wood Only.

From Robert Merker, Monee, Illinois.

I would like to know who manufactures a warm air furnace for wood only with a long fire box, which was advertised in AMERICAN ARTISAN some time ago.

Ans.—Keith Furnace Company, Des Moines, Iowa.

Warm Air Heater System.

From Charles A. Changnon, Montpelier, Ohio.

Can you tell me who can furnish a warm air heating system that will conform to the Ohio State Code for heating a church building?

Ans.—A. B. Stove Company, Battle Creek, Michigan; American Furnace Company, St. Louis, Missouri; The Beckwith Company, Dowagiac, Michigan; Cole Manufacturing Company, Western Avenue and Thirty-second Street, Chicago, Illinois; Cooperative Foundry Company, Rochester, New York; Danville Stove Manufacturing Company, Danville, Pennsyl-

vania; Excelsior Steel Furnace Company, 118 South Clinton Street, Chicago, Illinois; Farris Furnace Company, Tenth and Enos Avenue, Springfield, Illinois; Forest City Foundry and Manufacturing Company, Cleveland, Ohio; Germer Stove Company, Erie, Pennsylvania; Globe Stove and Range Company, Kokomo, Indiana; Hall-Neal Furnace Company, 137 Washington Street, Indianapolis, Indiana; Hammond Heating Company, 110 East Second Street, Cincinnati, Ohio; Haynes-Langenberg Manufacturing Company, 4045 Forest Park Boulevard, St. Louis, Missouri; Henry Foundry and Furnace Company, 825 Long Avenue, Cleveland, Ohio; Hess-Snyder Company, Massillon, Ohio; Kansas City Furnace Company, 2429 Independence Street, Kansas City, Missouri; W. E. Lamneck Company, Columbus, Ohio; Lennox Furnace Company, Marshalltown, Iowa; Magee Furnace Company, 38 Union Street, Boston, Massachusetts; Mahoning Foundry Company, 548 Poland Avenue, Youngstown, Ohio; Majestic Company, Huntington, Indiana; Manny Heating Supply Company, 131 West Lake Street, Chicago, Illinois; Meyer Furnace Company, Peoria, Illinois; Modern Way Furnace Company, 219 Berry Street, Fort Wayne, Indiana; Monitor Stove and Range Company, Cincinnati, Ohio; Monroe Foundry and Furnace Company, Monroe, Michigan; May-Fiebeger Furnace Company, Newark, Ohio; Premier Warm Air Heater Company, Dowagiac, Michigan; Rudy Furnace Company, Dowagiac, Michigan; Rybolt Heater Company, Ashland, Ohio; Scheible-Moncrief Furnace Company, Cleveland, Ohio; Schill Brothers Company, Crestline, Ohio; R. J. Schwab and Sons Company, Milwaukee, Wisconsin; Standard Furnace and Supply Company, Omaha, Nebraska; Tubular Heating and Ventilating Company, Philadelphia, Pennsylvania; XXth Century Heating and Ventilating Company, Akron, Ohio; Victor Heater Company, Marshalltown, Iowa; Wise Furnace Company, 262 Hamilton Building, Akron, Ohio.

Water Turbines.

From Joseph Werndl, Coffeyville, Kansas.

Please advise who makes water turbines.

Ans.—Allis-Chalmers Manufacturing Company, Milwaukee, Wisconsin; Holyoke Machine Company, Worcester, Massachusetts; S. Morgan Smith Company, York, Pennsylvania; Wellman-Seaver-Morgan Company, Cleveland, Ohio.

Copper Can Screws.

From C. J. Eby, Bancroft, Nebraska.

I would like to know where I can buy two and one-half inch copper can screws.

Ans.—Merchant and Evans Company, 337 North Sheldon Street, Chicago, Illinois.

Steel For Wire Cutting Tools.

From J. C. Graham, Box 15, Grandville, Michigan.

Kindly advise who makes the best steel for wire cutting tools.

Ans.—Haynes Stellite Company, Kokomo, Indiana.

Illustrations of New Patents

Watch This Page. Keep Yourself Informed Concerning Improved Devices Which May Save Labor in Your Shop or Add Another Source of Income to Your Retail Store.

1,351,625. Fishline Attachment. Martin J. Crosbie, New York, N. Y. Filed Feb. 11, 1920.

1,351,631. Ash-Sifting Device. Abraham Elkins, Bridgeport, Conn. Filed June 27, 1919.

1,351,632. Tool-Holder. Oswald Engels, Flint, Mich. Filed Jan. 24, 1920.

1,351,668. Parallel-Jaw Pliers. Anton Mae, New Haven, Conn. Filed Nov. 4, 1919.

1,351,669. Artificial Bait. Charles R. Mansfield, Crescent City, Calif. Filed Dec. 5, 1919.

1,351,686. Latch. Pasquale Raccio, New Haven, Conn., assignor, by direct and mesne assignments, to The Racolock Company, New Haven, Conn., a Corporation of Connecticut. Filed Aug. 5, 1919.

1,351,694. Metal Lath. Stephen Scanlon, New York, N. Y. Filed Feb. 4, 1919.

1,351,703. Eaves-Trough Screen. William L. Spriggs, Bixby, Okla. Filed Jan. 23, 1920.

1,351,733. Window-Screen. Charles J. Barker, Columbus, Ohio. Filed Apr. 16, 1920.

1,351,804. Measuring-Calipers. Knut Elving Solberg, Philadelphia, Pa. Filed May 14, 1919.

1,351,805. Mop-Wringer. Frederick Speckman, St. Louis, Mo. Filed Dec. 29, 1919.

1,351,823. Dinner-Pail. Loyd Windbichler, Nokomis, Ill. Filed Dec. 11, 1918.

1,351,826. Safety-Razor. Lewis H. Allen, West Springfield, Mass. Filed Aug. 9, 1919.

1,351,838. Lock. Benjamin J. Cohon, Westwood, and Louis Moskowitz, Bayonne, N. J. Filed May 8, 1916.

1,351,852. Squeegee. John H. Menkhaus, Cincinnati, Ohio. Filed Mar. 22, 1920.

1,351,912. Metallic Fencepost. Carl Klein, Wichita, Kans. Filed Aug. 7, 1919.

1,351,925. Skate. George H. Ricke, Cincinnati, Ohio. Filed Dec. 15, 1919.

1,351,940. Screen Door and Window Construction. David C. Blake, Durham, N. C. Filed Apr. 12, 1920.

1,351,959. Fastening Device for Fence-Wires. Otto J. Minnich, Boerne, Tex. Filed July 29, 1919.

1,351,964. Garbage-Can. Michele Orofino, Philadelphia, Pa. Filed Oct. 13, 1919.

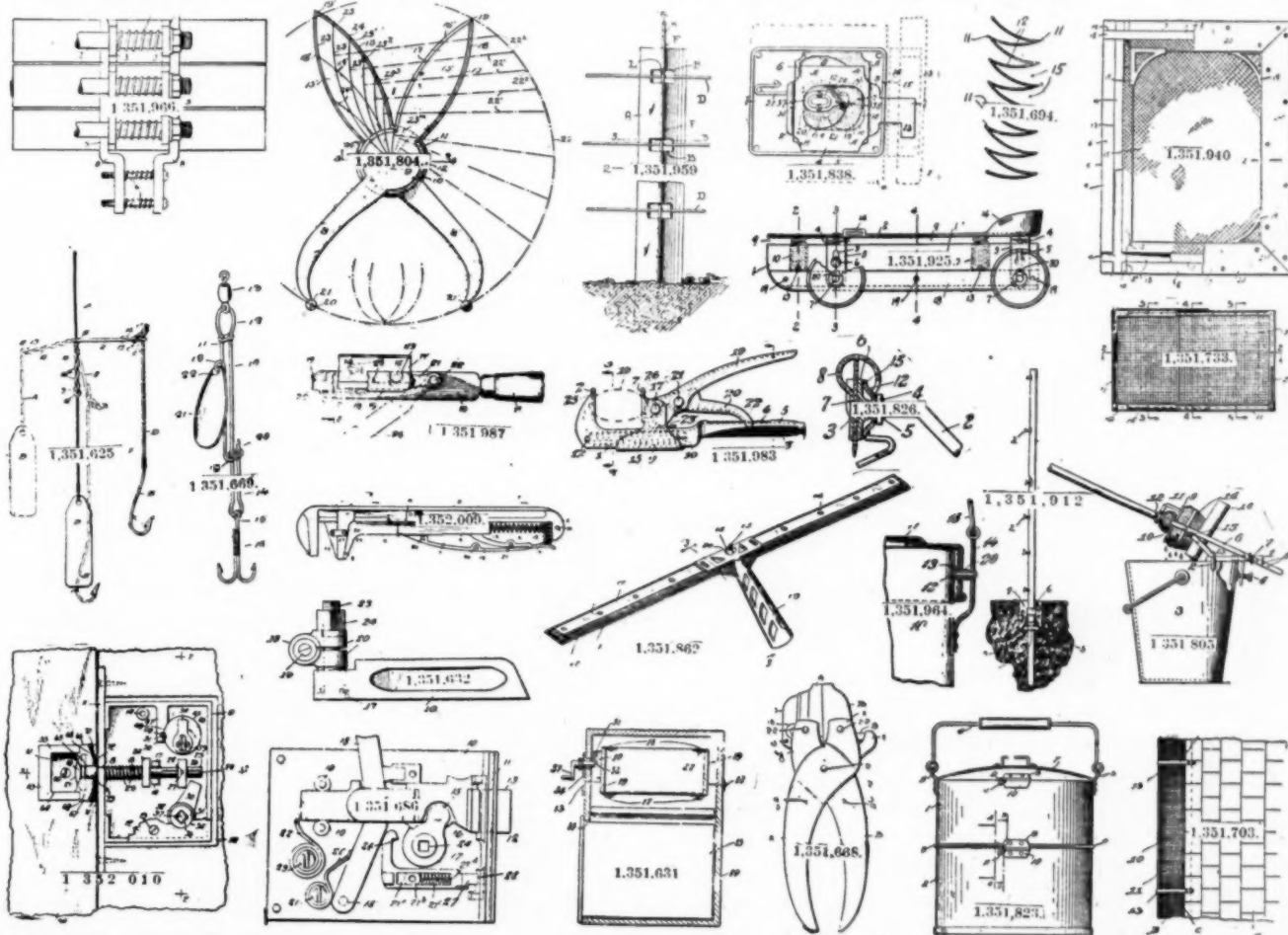
1,351,966. Adjustable Clamp. Milton L. Radtke, Detroit, Mich. Filed June 16, 1919.

1,351,983. Nutcracker. Samuel L. Allen, Moorestown, N. J.; Sarah H. Allen, Charles J. Allen, Elizabeth R. Allen, Susan J. Allen, and Emily Allen Elfreth, executors of said Samuel L. Allen, deceased. Filed June 22, 1916.

1,351,987. Razor-Blade Holder. Anthony F. Barro, New York, N. Y., assignor of one-half to Alphonse A. Dibblee, New York, N. Y. Filed Dec. 14, 1918.

1,352,009. Wrench. Victor A. Lillquist, Superior, Wis. Filed Nov. 17, 1919.

1,352,010. Door-Lock. William A. Lurie, New Orleans, La. Filed Dec. 12, 1919.



Weekly Report of the Markets

General Conditions in the Steel Industry. Review of Prices and Tendencies in Sheet Metals, Pig Iron, etc.

IMPROVED TRAFFIC CONDITIONS HELP STEEL TRADE.

As a consequence of improved traffic conditions, the steel trade is more normal than it has been since the steel strike.

Operators and consumers, who have been suffering from a shortage of material and fuel, now find themselves with plenty.

During August the railroads moved the largest amount of freight handled in any four weeks of the present year and it is anticipated that September will establish an even better record.

In fact, it is estimated that between 75 and 100 per cent of the finished and semi-finished steel accumulated during the transportation dislocation between April and July has been moved to the consumer, which represents a rate of shipment two or three times as great as the rate at which it was produced.

Several Pittsburgh sheet bar manufacturers are eagerly seeking outlets for their production, and a still greater anxiety to sell is noted in other fields.

It is thought possible in some quarters that sheet bars could be purchased as low as \$60 a gross ton, base Pittsburgh, despite the fact the most of the independent makers are holding for \$70. The leading interest has contracted with the railroads to deliver in 1921 some 440,000 tons of steel rails.

Steel.

There is a slight shading of premium prices and a falling off in demand, but this reflects the easier position of the consumer as regards supplies, and even a temporary over-supply of material. Whereas there is less talk of an advance in steel prices, especially by the leading interest, the Carnegie Steel Co., a subsidiary of the corporation, did add between \$3 and \$4 a ton to its last quarter contracts for semi-finished material. The American Steel & Wire Co. has also raised cold rolled strip steel \$3 per ton to accord with a similar advance recently made in plain wire and wire rods.

It is reported that a canvass of the New York warehouses brought to light a reduction of half a cent a pound on the entire list of products carried by some of the smaller jobbers on account of credit restrictions, but firms whose credit is "good" are making no concessions.

Although warehouse business in New York is duller than usual, the amount being done is very satisfactory when compared with other lines.

Sheets in New York are very scarce and are selling at high premiums for spot, sheets en route from Pittsburgh are selling at high prices, but business in futures is being booked at comparatively low prices.

Sheet cancellations by the automobile industry have been readily and greedily absorbed by other consum-

ers, notwithstanding the increased rate of production at the mills, which is now as high as 85 per cent of capacity.

Copper.

Stagnation still characterizes the domestic copper market and the leading products have reduced the price of spot copper to 18.75, but continue to hold firmly to the 19 cent price for deliveries over the balance of the year.

Smaller producers are quoting from 18.25 to 18.50, and the outside market from 18 to 18.25.

In fact, the metal has been offered as low as 17.95 during the past week, but one sale of 2,000,000 pounds of copper wire bars is reported at 18.75 a pound for spot delivery.

Consumers are fast using up their surplus stocks and are expected to be forced into the market to cover their November and December requirements any time.

However, it is believed in some circles that consumers are afraid to come into the market on account of possibility of cancellations in case deflation in commodity prices should become too rapid.

They consider money in the bank is preferable to having it tied up in copper now.

Much of the tonnage of metal contracted for by the consumers early in the year was carried over on account of the great reduction in operations at the Eastern brass foundries and wire mills during the recent transportation dislocation and labor difficulties.

Also the immense surplus left at the end of the war still overshadows the market.

Tin.

The domestic market is extremely irregular. There continues to be pressure to sell tin for prompt delivery.

This selling is attributed to continued liquidation by over-bought consumers, and it is reported that as low as 43 cents per pound was accepted for 25 tons spot Straits tin for city delivery in New York, Monday of this week, although at the time of our report the general market was 44 cents and for city delivery 43.50 cents.

This spot pressure has resulted in the general market today being reduced to nominally 43.50 cents, which is approximately 1 cent per pound lower than futures.

Limits on futures for account leading London sellers are comparatively high, but there are domestic sellers who, having their own view of the market, are disposed to sell at concessions to good consumers, thus: tin for November delivery might be obtainable at 44.25 cents, December at 44.50 cents, January at 44.62½ cents, February at 44.62½ cents.

Very little is being heard about Banca tin or Lamb & Flag tin, neither of which are offering favorably

for import. Chinese No. 1 is also so closely held that the price is now less than 2 cents per pound under Straits, although about a month ago the difference was $4\frac{1}{2}$ cents.

In the Chicago market a further decline of $1\frac{1}{2}$ cents per pound has taken place, pig tin now being quoted at $47\frac{1}{2}$ cents and bar tin at $49\frac{1}{2}$ cents.

Lead.

Further dumping of foreign and cheaper lead in the domestic market the past week to the amount of 1,800 tons has accentuated the extreme weakness that has characterized it of late and forced the leading interest to announce the second cut in prices in less than two weeks' time of a half a cent a pound.

This second reduction was made on last Friday and was from 8.50 to 8 cents New York and from 8.25 to 7.75 St. Louis.

The leading interest has maintained its quotations at about a half a cent above the outside market, but this last reduction eliminates any spread between the two markets at present and further recession in prices is not looked for especially if importations are maintained at the rate they have been coming in the past two weeks.

American pig lead in the Chicago market has declined from \$8.80 to \$8.55 per 100 pounds and bar lead from \$9.30 to \$9.05 per 100 pounds.

Zinc.

There is little change in the domestic zinc market which continues dull and quiet and quotable at 8 cents for New York and 7.75 cents for St. Louis.

It is generally recognized that zinc is cheap in the light of present and prospective production costs, but many articles which zinc enters into are not cheap, and therefore its use and consumption is being retarded on that account. Galvanized sheets, for example, are being sold in the open market today for prompt deliveries as high as 9.75 cents per pound or nearly 2 cents per pound above the price of zinc.

In the Chicago market, the price of zinc in slabs has declined 10 cents per 100 pounds, the figures now being \$8.50 per 100 pounds.

Solder.

No additional changes have occurred in the Chicago market for solders. The prices now in effect are: Warranted, 50-50, per 100 pounds, \$31.50; Commercial, 45-55, per 100 pounds, \$29.50; and Plumbers', per 100 pounds, \$27.50.

Tin Plate.

Reports from Pittsburgh indicate that deliveries against contracts are being urged by consumers of tin plate but new demand is light. Tonnages that are being sold are understood to be commanding \$9, base, Pittsburgh. While reports are heard that some independents will ask this figure for first half business, there is a general belief that a lower level will be quoted. Operations of tin plate mills have increased by reason of better shipments of sheet bars and of more cars for moving the outbound product to can makers. They now are estimated at 85 per cent of capacity, better than for several months. Output of

tin plate this year so far is said to have been less than 20,000,000 boxes, or at about the same rate as last year, when total production was approximately 25,000,000 boxes as against a normal output of 36,000,000 boxes annually.

Sheets.

The market for sheets is very quiet, the demand being for but a small tonnage in the aggregate. What demand develops is only for relatively early shipment.

In the Chicago market, one pass cold rolled black sheets have advanced in price 10 cents per 100 pounds.

Sheet mill operations show a slight tendency to increase from week to week, although there is not room for a great deal of improvement since for two or three weeks past an average of about 85 per cent of the sheet mills have been in operation, and that is not far from the best that can be expected, since for every sheet mill to be in operation at the same time is practically impossible.

Tonnage outputs per mill are reported to be considerably better, there being the combined influence of milder weather conditions and of more disposition on the part of the men to earn money, against the "rainy day" that used to be viewed with respect, but which a great many recently seemed to think the war had permanently abolished.

Old Metals.

Wholesale quotations in the Chicago district which may be considered nominal are as follows. Old steel axles, \$33.00 to \$34.00; old iron axles, \$43.00 to \$44.00; steel spring, \$25.50 to \$26.00; No. 1 wrought iron, \$22.50 to \$23.00; No. 1 cast, \$33.00 to \$33.50; all net tons. Prices for non-ferrous metals are as follows, per pound: Light copper, $11\frac{1}{2}$ cents; light brass, 7 cents; lead, 6 cents; zinc, $4\frac{1}{2}$ cents; cast aluminum, 15 cents.

Pig Iron.

According to the weekly report of Rogers, Brown and Company, Cincinnati, Ohio, the market is devoid of features and may be described as simply drifting.

Inquiry is fair and a small tonnage has been booked. The greater demand appears to be for malleable iron, although an inquiry appeared during the week for 12,000 tons of basic to be delivered over the balance of this year.

Prices, in general, are firm and the quietness of the market is having no effect on the attitude of the Furnace Companies towards sales, for with their well filled order books they are devoting themselves almost entirely to the matter of keeping shipments going with sufficient regularity to satisfy their customers.

Coke is moving somewhat more freely and many foundries are endeavoring to take advantage of this situation to accumulate a small stock against possible interruptions to transportation this winter, bearing in mind the acute situation which confronted them last year.

There appears to be little change in the price of foundry coke, the standard foundry brands bringing from \$18.00 to \$19.00 at the ovens.

BLACKING, STOVE. (See Polish)

BLADES, SAW.

Butchers'.
Standard, $\frac{1}{2}$ & $\frac{1}{4}$ -in. Nets
Clock Spring.....
Star

Hack.
Atkins5%
StarNets

Wood.
Dixson
Nos. 6 66 26
..... \$3 00 \$3 50 \$3 00
Atkins
Nos. 2 14 18
..... \$3 35 \$3 50 \$4 75

BLOCKS.

Wooden20%
Patent20%

BOARDS.

Stove.
Wabash Crystal.....Net Prices
Wabash Art Inlay....
Wabash Embossed....

Wash.
No. 760, Banner Globe,
(single)per doz. \$5 25
No. 652, Banner Globe,
(single)per doz. 6 75
No. 801, Brass King per doz. 8 25
No. 860, Single—Plain
Pump 6 25

BOLTS.

Carriage, Machine, etc.
Carriage, cut thread, $\frac{1}{2}$ x6
and sizes smaller and
shorter30%
Carriage, sizes larger and
longer than $\frac{1}{2}$ x620%
Machine, $\frac{1}{2}$ x4 and sizes
smaller and shorter.....35%
Machine, sizes larger and
longer than $\frac{1}{2}$ x4.....25%
Stove50-10%
Tire40-5%

Mortise, Door.
Gem, iron.....5%
Gem, bronze plated.....5%

Barrel.
CastNets
Wrought
Wrought, bronzed

Flush.
Wrought

Spring.
Wrought
Wrought, heavy.....

Square.
Wrought

BORERS.

Angular.
Miller's Falls.....per doz. \$23 00
Sill borer, No. 51 " 34 00
" 52 " 39 50

Burg.
Enterprise Mfg. Co.'s No. 1.....10%
" " " No. 2.....10%

BOXES.

Mail, No. 2 4 10
Per doz.\$18 00 23 00 29 00

Mitre.
Stanley's.....Net Prices
Stearns, No. 2....per doz. \$48 00

BRACES.

Fray's Genuine Spofford's
Fray's No. 63\$7 50
" No. 610 8 00

BRACKETS.

Hay Hack.
Wenzelmann's No. 1, per
doz. sets.....\$18 00
Wenzelmann's No. 2, per
doz. sets..... 19 20
Wheff.
Wrought Steel.....40%

Well.

Oak, Wrought Iron Riveted
Top Ears.....per doz. \$8 00

BURRS, RIVETING.

Copper Burrs only..25% above list
Tinner's Iron Burrs only.....30%

BUTTS.

Cast Iron.....7%
Wrought Brass (New List) Plus 5%
Wrought Steel, Bright.....40%
Wrought Steel, Japanned, ..
.....Net Prices

CALIPERS.

DoubleNets
Inside and Outside.....
Wing

CALKS

Logger's Boot.
(Lufkin R. Co.'s), per M..\$7 00

Toe.
Blunt and medium, 1 prong,
per 100 lbs.....\$6 20
Sharp, 1 prong, per 100 lbs 6 70

CANS.

Milk.
Elgin.
Gals..... 5 8 10
Each\$4 00 \$5 15 \$5 15
Iowa Patterns.
Gals..... 5 8 10
Each\$4 00 \$5 15 \$5 15

CAN OPENERS.

See Openers.

CAPS, GUN.

See Ammunition.

CARPET STRETCHERS.

See Stretchers.

CARRIERS.

Hay.
Diamond, Regular...each, Nets
Diamond, Sling.....

CARTRIDGES.

See Ammunition.

CASTERS.

Standard—Ball Bearing,
.....50&10%
Bed40%
Common Plate.
Brass Wheel.....15%
Iron and porcelain wheels,
new list50%
Philadelphia Plate, new
list50%
Martin's40%

CATCHERS, GRASS.

No. 160S, per doz.....\$12 25
No. 165S, " 14 01

CEMENT, FURNACE.

American Seal, 5 lb. cans, net \$0 45
" " 10 lb. cans, " 90
" " 25 lb. cans, " 1 87
Pecora, 5 lb. cans..... 45
" 10 lb. cans..... 90
" 25 lb. cans..... 1 87

CHAIN AND CHAINS.

Breast Chains.
With Slide....doz. pairs, \$ 5 50
Without Slide.. " 5 06
Doubleslack.... " 9 35
With Covert Snaps " 6 38

Picture Chains.

Light Brass, 3 ft...per doz. \$1 25
Heavy Brass, 3 ft.. " 1 75

Sash Chain.

(Morton's)
Steel, per 100 ft.
0..... \$2 50
2..... 3 10
1..... 3 60

Champion Metal.

0R..... 5 40
2R..... 5 60
1R..... 7 75

Champion Metal.—Extra Heavy.

1H..... 9 50

Cable Sash Chains.

Steel.....List Net Plus 15%

CHALK, CARPENTERS'.

Blueper gro., \$1 40
Red 1 40
White 1 25
Common White School
Crayon 25c

CHIMNEY TOPS.

In bags.....per bag \$1 70

CHECKS, DOOR.

Corbin.....Net List
Russwin..... 20%

CHECKS, DOOR.

Iwan's Volcano.....25%

CHISELS.

Box.
Inches..... 12 14
Round, per doz.....\$5 25 5 75
Flat, per doz..... 7 25 8 25

Cold.
Good quality, $\frac{1}{2}$ in. and
largerNets
Smaller size, per doz.....Nets

Socket, Firmer.

Ohio.....Price on Application

Socket, Framing.

Ohio.....Price on Application

Tanged, Firmer.—Barton's

With handles.....Net List

Choppers, See Cutters, Meat.

CHUCKS, DRILL.

Goodell's, for Goodell's Screw
DriversList less 35-40%
Yankee, for Yankee Screw
Drivers \$8 00

CHURNS.

Anti-Bent Wood,
Gal..... 5 7 10
Each\$3 90 4 60 4 85
Belle, Barrel65&7%
Common Dash,
Gal..... 5 7
Per doz. 17 00 19 00

CLAMPS.

Adjustable.
Martin's30%
No. 63, Screw.....20%

Cabinet.

Screw20%

Carpenters'.

Steel Bar...List price plus 25%

Carriage Makers'.

2 $\frac{1}{2}$ "per doz. \$7 00
5" 14 00
8" 23 00
12" 46 00

Quilt Frame.

No. 30 Ball and Socket,
2 $\frac{1}{4}$ " head.....per gross \$13 00
No. 50, Ball and Socket,
3 $\frac{1}{2}$ " head....per gross 14 50

Hose.

Sherman's, brass, $\frac{1}{2}$ ", per
doz. 48c
Double, brass, $\frac{1}{4}$ -in., per
doz. 1 20

Saw Filers.

Wentworth's, No. 1, \$12.50; No.
2, \$18.25; No. 3, \$16.25.

CLAWS, TACK.

Wood hdl. No. 10....per doz. \$0 85
Forged steel, wood hdl. " 1 75
Solid steel..... " 2 40
Giant " 50

CLEANERS.

Drain.

Iwan's Adjustable.....25%
Iwan's Stationary.....30%

Pot.

Wireper doz. \$0 75

Side-Walk.

Steel.....per doz., Net prices

CLEAVERS.

Family.

Beatty's,
inch.... 7 8 9 10
Per doz. \$27 00 29 00 32 00 34 00

CLEAVISES.

Malleable10c lb.

CLIPPERS.

Bolt\$2 25&6 00

CLIPS.

Axle65&5%

Damper.

Standardper doz. 70c
Troy 28c

Hame

" 50c

CLOTH.

Emery.
StarNew Prices
B. & A. " "

Hardware Wire— Prices on application
Full rolls (100 ft.) application
12 Mesh, galvanized " "
14 " " " "
16 " " " "
18 " " " "

Screen Wire. Prices on application
12 mesh, painted, per
100 sq. ft.....

COLLARS, STOVE PIPE.

Lacquered.

Inches 5 6 7
Fancy pattern,
per doz. 80c 85c \$1 15

COMPASSES.

Carpenters'15%

COPPER—See Metals.

COPPERS—Soldering.

Pointed Roofing.
lb. and heavier....per lb. 37c
3 lb. 38c
2 $\frac{1}{2}$ lb. 37c
1 $\frac{1}{2}$ lb. 40c
1 lb. 42c

CORD.

Picture.

White Wire.....68&5%

Sash.

Sampson Spot, No. 7, per
doz.\$24 50
Sampson Spot, No. 7, per
doz.\$23 40

CORKSCREWS.

Walker's30%
Williamson's Regular.....35&11%
Williamson's Forged Worm...40%

COTTERS, SPRING.

All sizes.....87%&5%

COUPLINGS, HOSE.

Brassper doz. \$1 25

COVERS, WAGON—See Tents.

CRADLES, GRAIN.

Morgan's Grapevine per doz. \$45 00

CRAYONS—See Chalk. CUTTERS. Glass. Woodward40% Meat. Enterprise—Nos. 5 10 12 Each.... \$2 50 \$4 25 \$3 75 Nos. 22 32 " 6 50 8 50 Pipe. Saunders', No. 1 2 3 Each\$1 85 2 75 6 75 Slaw and Kraut. Per doz. 4-knife Kraut.....\$20 00-55 00 3-knife Kraut, 5x27 in. 13 00-18 00 1-knife Slaw 2 50 2-knife Slaw 3 00 Washer 11 00	ELBOWS—Conductor Pipe. Galvanized Steel, Tin and Terne, Round Corrugated. Size. Doz. 2-inch50% 3-inch50% 4-inch50% 5-inch50% 6-inch50% EMERY, TURKISH. Out of market at present time. Domestic, lb.10c EYES. Bright Wire Screw—See Woods, B. W. Drifting Pick60, 10 & 5% Hooks and Eyes— Brass, 1½" No. 60, per gross\$3 50 Iron, 1½" No. 50, per gross 1 60	Wood Falls. Frazer's, 15lb \$1.00; 25lb \$1.50 each. Hub Lightning, 15lb 90c; 25lb \$1.21 each. Tin Cans. Frazer's 1½ lb. per doz.....\$1 75 3 lb. per doz..... 3 25 GRINDSTONES. Family. Inches.. 7 8 10 13 Per doz. 20 50 21 75 26 25 30 50 Loose. Per ton.....Price on application Mounted. Ball Bearing.. 1 2 3 Each\$4 75 5 00 5 25 GUN WADS. (See Ammunition) GUNS. Iver Johnson Champion Single Barrel Shot Guns....Net Prices Double Barrel, Hammer- less "	HANGERS. Barn Door. U. S. Reiler Bearing.....12½% Matchless12½% Warehouse Tandem, No. 4433¼% Conductor P. Iwan's Perfection.....45% Eave Trough. All sizes, 5" or smaller. per gross \$3 80 Net All sizes, larger than 5", per gross, 5 00 " Garage Door. Right Angle50&10% Sliding Folding50% Receding50% Parlor Door. Acmeper set, \$3 75 Ives' Improved.... " 3 40 Lane's Standard... " 3 50 Lane's New Model " 3 10 Le Roy Noiseless.....40&10% Richards25% Advance40&10% HASPS. Hinge, Wrought, ..Add 50% to list With Staples—See Staples. HATCHETS. Crescent50% Cast Claw.....per doz. \$1 50@1 85 Cast Shingling " 1 50@1 85 Germantown7½% HAY KNIVES. See Knives. HAY RACK BRACKETS. Wenzleman's No. 1 per doz. sets, \$13 00 Wenzleman's No. 2 per doz. sets, 19 20
DAMPERS, STOVE PIPE. Diamond All sizes....40% from New List DIES AND STOCKS Discount.....New List DIGGERS Post Hole Eureka.....per doz. \$14 50 Iwan's Split Handle (Eu- reka) 4-ft. Handle..per doz. 15 00 7-ft. " ..per doz. 20 00 Iwan's Perfection (Atlas) per doz 16 50 Iwan's Hercules pattern per doz 18 00 See also Augers—Post Hole. Dividers, Wing25%	FASTENERS, STORM SASH. Shroeder's.....per doz. \$1 50 Sensible..... " 3 00 FILES AND RASPS. Delta Delta30% SwissList plus 25% Utility..... " net. Nicholson's— American5-10% Arcade50-10-7½% Black Diamond.....40-10% Eagle50-10-7½% Great Western50-10-7½% Kearney & Foot.....50-10-7½% McClellan50-10-7½% Nicholson brand.....40-10-5% J. Barton Smith.....50&2½% X-F Swiss Pattern....Net List Simonds'50% Disston's50% Heller's60&10%	HAFTS, AWL. Brad. Commonper doz. \$0 35 Patent, plain top.. " 80 Patent, leather top " 90 Sewing. Common " 24 Patent " 55 HAMMERS, HANDLED. each, net. Blacksmiths, Hand, No. 0, 26 oz.\$1 35 Engineers', No. 1, 26 oz.... 1 35 Farriers', No. 6, 7 oz..... 1 41 Machinists', No. 1, 7 oz.... 1 06 Nail. Vanadium, No. 4½, 16 oz., each\$2 00 V. & B., No. 11½, 16 oz., each 1 60 Garden City, No. 11½, 16 oz., each 1 35 Tinner's Riveting, No. 1, 8 oz., each 1 10 Shoe, Steel, No. 1, 13 oz., each 1 00 Tack Magnetic. No. 5, each.....\$1 00 HAMMERS, HEAVY. Heavy Hammers and Sledges. Under 5 lbs.....50% 5 lbs. and over.....50&10% Masons'. Single and Double Face.....50%	HINGES. Clark's Gravity No. 1.....per doz. sets, \$2 25 No. 2..... " " 5 75 Gate. Clark's 1 2 3 Hgs & Lch, dz. \$5 50 7 00 9 75 Hinges only " 4 75 5 50 8 00 Latches only. 1 90 1 90 Screen Door. Cast Irongross \$10 00 Steel " 7 00 Spring. ChicagoAdd 12½% to list Columbia Dbl. Acting, 40&10&5@ Gem25% Ideal Detachable, per gro. \$11 00 Matchless40% New Ideaper gro. \$7 20 Oxford20% Wrought Iron. New Lists Light Strap Hinges.....5&5% Heavy Strap Hinges...20&7½% Light T Hinges...List plus 45% Heavy T Hinges...List plus 45% Extra Heavy T Hinges. 15&5% Screw Hook and Strap. 6 to 12 in....per 100 lbs. \$7 75 14 to 20 in.... " 7 50 22 to 26 in.... " 7 25 Screw Hook and Eye. ¾ in.....per doz. pair \$3 00 ¾ in..... " " 3 50 ¾ in..... " " 5 00
DOOR CHECKS—See Checks DOORS, SCREEN ¾-in. 4-panel, painted Net Prices 1½-in. 4-panel, painted " 1½-in. 3-panel, natural pine, fancy " DOOR HANGERS—See Hangers DRILLS Blacksmiths' Twist. (New List)40% Breast. Millers Falls No. 12, each \$46 00 " " 112, " 26 00 Hand. Goodell's Automatic. Nos. 01 03 Per doz. 12 00 14 40 Goodell's Single Gear, per doz.15 75 Goodell-Pratt No. 4½ per doz. list, less.....30% Goodell-Pratt No. 379 per doz. list, less30% Reciprocating. Goodell's.....per doz. 26 00	FIRE POTS. Clayton & Lambert's— each\$4 00 @ 6 00 Gate City.....each, 6 25 Gemeach, \$6 75 @ 8 50 FORKS. Barley. Steel, new list.....New Prices Hay. 2-tineNew prices 3- "New prices 4- "New prices DiggingNew prices ScoopNew prices Header. 3-tineNew prices 4- "New prices Manure. 4-tine.....New prices FREEZERS—ICE CREAM White Mountain 1-quart....@ " " 2 "@ " " 4 "@ " " 6 "@ Arctic..... 1 "@ " 2 "@ " 4 "@ " 6 "@ GAUGES. Cream Fall. Fairmount..... per doz. \$3.75 Marking, Mortise, etc.....Nets Wire. Disston's25% Discount35@40% GIMLETS. Bulk. B Amber.....per lb. 35c A White..... " 40c H. S. Amber..... " 32c Liquid. Army & Navy.....40% Le Page's— List "A".....37½% List "B".....33¼% List "C".....25 % GLUE. Wood Boxes. Frazer'sper gro. \$13 00 Hub Lightning 7 50	HANDLES. Auger. Common Assorted per doz. \$0 75 Pratt's Adjustable, Nos. 1 & 2, per doz..... 6 00 Ives' Adjustable...per set, 1 35 Axe30% Chisel. Hickory, Tanged, Firmer, As- sorted, 55c; Large, 85c per doz. Hickory, Socket Firmer, As- sorted, 70c; Large size, 80c per doz. Coal Pick40% Drifting Pick40% File, assorted, 30c; Large, 35c per doz. Hammer. Adze Eye...per doz. 40c to \$1 00 Blacksmiths' " 45c@1 00 Machinists' " 50c@1 00 Hay and Manure Fork.....25% Screw Driver. Assorted Large Shovel and Spade.....25%	HOES. GardenNet Grub. ExtraNew prices Hazel..... per doz. New prices Ladies' and Boys'New prices MortarNew prices Planter's Eye.....New prices WeedNew prices HOOKS. Awning, No. 60.....per gro. 50% Belt. Brown's70&5% Jones'65&5% Bench. See Stops, Bench.
DRIVERS, SCREW StandardNets Lock Ferrule " Champion " Champion Pattern " Clark's Interchangeable " Edison " Reed's Lightning " Goodell's Spiral " Yankee Ratchet " " Spiral " EAVES, TROUGH 50% off Standard List. ELBOWS—Stove Pipe 1-piece Corrugated, Uniform Doz. 5-inch\$2 25 6-inch 2 30 7-inch 2 60 Uniform, Collar Adjustable Doz. 5-inch\$2 65 6-inch 2 70 7-inch 3 00	GREASE, AXLE. Wood Boxes. Frazer'sper gro. \$13 00 Hub Lightning 7 50	SHOVELS AND SPADES. Shovel and Spade.....25%	SHOVELS AND SPADES. Shovel and Spade.....25%

Box. Inch..... 5 7 10 12 Per doz. \$2 50 2 75 3 25 3 50 Bush. Common Axe Handle, per doz.\$22 00 Chain. Inch. 1/4 5/16 3/8 7/16 1/2 Pr 100 \$7 50-8 10 9 75 11 50 12 50 Clothes Line. Japannedper doz. 48c@1 40 Galvanized..... " 75c@1 50 Coat and Hat. Common Wire per gro. 1 25-1 65 Conductor. Iwan's Tinned Sickle.....List Corn. Common, riveted, painted redper doz. Nets Little Giant..... " " Gate. See Goods, Bright Wire. Grass. Common Nos. 1 3 5 7 Per Doz. \$4 50 3 50 3 75 3 25 Hammock. With plate.....per doz. 1 10 With screw..... " 1 00 Lambrequin, or Drapery, per gro.....30c Picture50%&50&10% Potato and ManureNets Screw. Brass70% (See Goods, Bright Wire.) Seat Spring.....per lb. 5 1/2c HOSE, GARDEN. Per ft. Guaranteed 3 ply 1/4 inch.....12 1/2c " 4 ply 1/4 inch.....13 1/2c " 5 ply 1/4 inch.....13 1/2c COTTON COV. RUBBER HOSE. High Grade Apache 1" guar. press. 400 lbs.....40c HUSKERS. Nos.B E Per doz.....New Nets No. 59.....per doz. New Nets IRON, FIG. See Metals.—First column. IRONS. Curling. C.....per doz. \$4 40 B....." 50 A....." 58 Princess1 25 Thelma1 25 Pinking1 00 Plane. Wood Bench...Add 10% to list Sad. Charcoalper doz. \$11 00 Common, polished, per 100 lbs.7 75 No. 70 Asbestos.....\$1 50 net No. 1001 75 net Common, nickel plated... 8 25 Mrs. Pett's No. 50 J, Enterprise, per set Nets No. 55 J, " " " " No. 50 T, " " " " No. 55 T, " " " " Tailors' Sad.....per lb. " Tailors' Goose.....per lb. " Ideal. 4 lb. Household\$3 50 9 lb. Dressmakers'4 25 14 lb. Tailors' Goose.....5 50 Tuyere. Single Duck Nest...per doz. \$5 25 Double Duck Nest.. " 6 25 Suttoneach 2 60 JACKS. Locomotive30% Wagon. Richard's No. 1...per doz. \$15 50 Miller20 00 Oliver..... " 00 Nos.0 00 Each\$0 60 \$0 80 Standard, Nos.1 25 Each\$0 60 \$1 00 R-W " " Big Lift.....40% Tiger40%	KETTLES. Brass15% Cauldron40&5% Copperper lb. 27 Maslin40&10% Sugar50% KNIVES. Beet Topping. Clyde, 9-in. Scimitar Blade, doz.\$3 55 California3 40 Butcher, Per doz. Beechwood Handles, 6" blade\$4 00 Beechwood Handles, 7" blade4 65 Beechwood Handles, 8" blade5 65 Cooper's Hoop.....15% Corn. Clipperper doz. \$1 75 Disston's2 75 Earle's3 00 Woodford2 25 Drawing. StandardList&5% Adjustable15% Barton's Carpenters'.....15% Hay. Iwan's Solid Socket...doz. \$13 00 Heath's12 00 Iwan's, Sickle Edge.. " 18 00 Iwan's Imp'd Serrated " 18 00 Hedge. Challengeper doz. \$6 00 Disston's3 75 Mincing. Common, Single .. " 60 Common, Double.. " 90 Streeter, 4-blade.. " 1 30 Streeter, 6-blade.. " 2 00 Putty. Commonper doz. \$0 75@1 50 Lander's ... " 1 75@2 50 Scraping. Beech Handle..... 90@1 10 Lander's5 50@6 50 KNOBS. Doors. Mineralper doz. \$1 80 Porcelain1 90 Jet2 00 LADDERS. Common Long. Per ft.17c@23c Extension. Per ft.22 to 28 Step. Common, per ft.....23c Common, with Shelf, add 10c. IXL24c Challenge, 6 to 9 ft.....55c 10 to 16 ft.....60c LANTERNS. Bull's Eye Police. 3-in. Flash Light...per doz. \$13 00 LEADERS, CATTLE. Nos.\$1 52 Per doz.....\$1 35 1 45 LEATHER, LACE. Rawhide 1/4".....100 ft. \$2 60 " 1/2"4 40 LEATHERS, PUMP. Valve and Plunger.....10% LIFTERS. Stove Cover. Coppered ...per gro. \$3 25@5 50 Alaska8 00 Alaska10 00 Transom. Payson's55% LINES. Chalk. Twisted in 20-ft. hanks. Nos. 4 6 7 8 9 Gro.....Prices on Application Twisted in 50-ft. balls. Nos.1 2 3 4 Per doz.....Prices on Application Braided in 20-ft. hanks. Nos.0 1 2 3 Per doz.....Prices on Application Mason's... " " " "	Clothes. 50-ft. Jute.....per doz. \$0 95 50-ft. Sisal..... " 40 50-ft. Cotton..... " 15 50-ft. Braided Cot- ton " 25 LINING, STOVE. Bricks.....per crate 43c LOCKS. Barn Door. No. 60 Stearns....per doz. \$13 00 No. 80 "24 00 MACHINES. Riveting. Stearns No. 1....per doz. \$16 00 Tensling. No. 50 Peace's Spoke, each \$14 00 MAIL BOXES. See Boxes. MALLETS. Carpenters'. Fibre Head, No. 2 per doz. \$16 50 " No. 3 " 19 50 " No. 4 " 28 50 Round Hickoryper doz. \$3 00—5 00 Round Lig- numvitae.. " 6 25—10 50 Square Hickory " 3 50—5 50 Square Lig- numvitae.. " 8 00—12 00 Tinners'. Hickoryper doz. \$2 25 MATS. Door. National Rigid.....50&10&5% Acme Steel Flexible.....50% Stove. No. 2.....per gro. Nets No. 1....." " No. 1 Asbestos Toasters or wire-covered Stove Mats, with handle.....per doz. 1 10 No. 2 Asbestos Toasters, with ring.....per doz. 60 MATTOCKS. Plumbs25% MAULS. Iron, lbs.10 13 16 18 Per doz...Prices on Application Wood Face, lb... 10 13 14 Per doz...Prices on Application Wood Choppers'. Lake Superior & Oregon pat.40&5% MEASURES. Galvanized, doz.....Nets Japanned, doz.....Nets MILLS, COFFEE. Enterprise16 2-3% Parker50&5% Arcade40-10% MITRE BOXES. See Boxes. MOFS. Cotton, Star (Cut Ends). Pounds 12' 15' 18' 24'-3 oz. Per doz. \$4 50 5 55 6 75 9 00 NAILS. Cut Steel ...Prices on Application Cut Iron " " " Wire. Small Lots, Prices on Application Cement Coated. Small Lots, Prices on Application Horseshoe. Ausable55&5% Capewell15% Perfect55&5% Putnam20&5% Star30&5% Picture. Brass Heads25% Brads50&5% FurnitureList plus 15%	NAIL FULLERS. See Fullers. NAIL SETS. See Sets. NETTING, POULTRY. Galvanized before weaving...50% Galvanized after weaving...40% NIPPERS. End Cutting. Stubb's Pattern, Inches 5 6 Per dozen.....\$4 65 6 75 End and Diagonal Cutting. Swedish Side, Inches 5 6 Per dozen\$4 50 6 75 Hoof. Heller's40&10% V. & B., No. 52, each.....\$2 25 NOZZLES. Hose. Magicper doz. \$9 50 Diamond5 75 NUTS, HOT PRESSED. Square Tapped. \$1.85 off per 100 lbs. Hexagon Tapped. \$1.85 off per 100 lbs. OILERS Chase Pattern. Brass and Copper.... 10% Zinc33 1/2% Engineers'. Tinper doz. \$7 00@9 00 Machine. Commonper doz. \$0 85 OPENERS. Box. See Box Chisels. Can. Delmonicoper doz. \$1 20 Never Slip..... " 65 Orate. V. & B.....per doz. \$7 25-11 00 OUTFIT'S, CONBLING. Combination3 v doz. \$16 00 Economy8 50 Family14 50 FAILS. Cream. 14-qt. without gauge,per doz. \$9 50 18-qt. without gauge,per doz. 11 00 20-qt. without gauge,per doz. 11 75 Sap. 10-qt., IC Tin....per doz. \$4 00 12 " "5 50 Stock. Galv'd qts. 14 16 18 20 Per doz. \$9 75 10 75 12 75 14 50 Water. Galvanized qts. 10 12 14 Per doz.....\$5 75 6 50 7 25 Wood. Cable, 2-Hoop.....per doz. Nets Cable, 3-Hoop..... " Nets Cedar, 3-Hoop, brass " Nets FANS. DrippingNet Fry. CommonNets Acme " " Roasting. Paxton, Nos.1 2 3 4 Per doz.....Nets Neverburn " " Savory, No. 200...per doz. \$5 40 PAPER. Building. Plainper 100 lbs. Prices Tarred " on ad- Tarred Felt. " " vance Red Rosin, per ten.....\$16 00 Sand and Emery. No. 1, per ream, best grade \$5 40 No. 1, per ream, cheaper grade4 85 Wrapping. Express100 lbs. Nets
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PARERS.		Fencing.		PUNCHES.		SAWS.	
Apple.		Black BullAll Nets		Conductors.		Band.	
Goodell'sper doz. \$10 80		Farmers' ChoiceAll Nets		No. 22per doz. \$3 00		E. C. Atkins & Co.	
Turntable " 11 40		Russell'sAll Nets		Machineper lb. 25		Disston'sPrices on applic'n	
White Mountain... " 8 40		Flat and Round Nose.		Saddlers'.		Buck.	
Reading, No. 73... " 11 40		Bernard'sNew Prices		Common.....per doz. 1 50 to 5 00		Disston'sPrices on applic'n	
Potato.		LodiNew Prices		Revolving Spring.		Jackson'sNew nets	
Goodsell's Saratoga, 10 1/2 in., doz..... 6 50		ParagonNew Prices		Stearns, No. 10.....per doz. \$8 00		Butchers'.	
Goodsell's Saratoga, 5 in., doz..... 5 50		Tinners'.		" No. 40... " 16 00		E. C. Atkins & Co.	
PICKS.		HollowNet List		" No. 60... " 19 00		Disston'sPrices on applic'n	
Adze Eye Ore.....22 1/2 %		PLUMBS AND LEVELS.		PURTY.		Circular.	
Drifting and Poll Picks.....22 1/2 %		CommonNets		Strictly pure...per 100 lbs. \$6 00		E. C. Atkins & Co.	
Plumbs, Railroad.....22 1/2 %		Cook's40 %		RAIL.		Disston'sPrices on applic'n	
Surface22 1/2 %		Davis' Iron.....25 %		Matchless, 1-in.....5c		Hiles'New nets	
PINCERS.		Davis' Inclinator.....15 %		Matchless, 1 1/4-in.....7c		Compass.	
Carpenters', cast steel.		POINTERS, SPOKE.		Storm King5c		E. C. Atkins & Co.	
No..... 6 8 10 12		Stearns' No. 1.....per doz. \$10 00		Sliding Door.		Disston'sPrices on applic'n	
Each... \$0.63 .80 1.05 1.15		" No. 2..... " 12 00		Bronzed wrought iron,		Coping.	
Blacksmiths'45 %		POKERS, STOVE.		"per ft. 3 1/4 c		E. C. Atkins & Co.	
Heller's40 %		Wrt Steel, str't or bent,		RAKES.		Disston'sPrices on applic'n	
PINS		Nickel Plated, coll han'l's " 1 10		Garden. Per doz.		Cross-Cut.	
Common...per box of 5 gro. \$0 95		POLISH.		Steel, Bow, 12-in. Teeth...\$8 50		E. C. Atkins & Co.	
Picket.		Metal.		Steel, Bow, 14-inch " ... 9 25		Disston'sPrices on applic'n	
Fluter, 15-in.....per doz. \$1 10		Wizard, 6 -oz.. per gross \$18 00		Malleable Iron, 12-in. " ... 4 75		Dehorning.	
Fluted, 21-in..... " 1 60		" 1/2-pt.. " " 20 40		Malleable Iron, 14-in. " ... 5 00		E. C. Atkins & Co.	
Spiral " 1 90		" 1-pt.. " " 36 00		Hay.		Disston'sPrices on applic'n	
PIPE.		" 1-qt.. " doz. 6 00		Wood, 10 Teeth.....\$4 00		Hand and Rip.	
Conductor.		" 1/2-gal.. " " 10 30		Lawn.		E. C. Atkins & Co.	
Plain Round and Round Corru-		" 1-gal.. " " 18 60		20 Teethper doz. \$5 50		Disston'sPrices on applic'n	
gated.		Stove.		RASPS—See Files.		Hack.	
29 Gauge50 %		Black Eagle Paste 5 -oz.\$13 80		RAZORS—SAFETY.		Disston'sPrices on applic'n	
28 "40 %		" 1/2-pt.. " " 20 40		Gilletteper doz. \$45 00		Hand and Rip.	
26 "30 %		" 1-pt.. " " 36 00		Auto Strop " 45 00		E. C. Atkins & Co.	
24 "List		" 1-qt.. " doz. 6 00		Gem " 8 40		Disston's No. 7 Prices on applic'n	
Square Corrugated A and B and		" 1/2-gal.. " " 10 30		Gem (3 doz. lots) ... " 8 00		Disston's Nos. 8, D8, 12, 76,	
Octagon.		" 1-gal.. " " 18 60		Ever Ready " 8 40		112, D100, and 120,	
29 Gauge40 %		Stove.		Ever Ready (3 doz. lots) " 8 00		prices on applic'n	
28 "35 %		Black Eagle Liquid, 6-oz.		RAZOR STROPS.		Keyhole.	
26 "25 %		per gross 15 60		Star (Honing)50 %		E. C. Atkins & Co.	
24 "List		Black Kid Paste, 5 lbs.		REGISTERS.		Disston'sPrices on applic'n	
Galvanized Toncan Metal, Gen-		per case 6 00		Cast IronList		Miter Box.	
uine O. H. Iron, Lyonore		Black Jack Liquid, 1/2-pt.		Steel and Semi-Steel.....10 %		E. C. Atkins & Co.	
Metal, Charcoal Iron and		per gross 15 60		Solid Brass or Bronze Metal		Disston'sPrices on applic'n	
Keystone C. E.		Black Jack Paste, No. 10,		Baseboard10 %		Panel.	
Plain Round and Round Corru-		per gross 13 20		Adjustable Ceiling Ventilators 10 %		E. C. Atkins & Co.	
gated.		POWDER.		REGISTER FACES.		Disston's No. 7 Prices on applic'n	
28 Gauge40 %		See Ammunition.		Japanned, Bronzed and Plated,		Patternmakers'.	
26 "30 %		PRESSES, FRUIT AND JELLY.		4x6 to 14x14.....10 %		E. C. Atkins & Co.	
24 "List		Enterprise Manufacturing Co. 25 %		14x14 to 38x42.....25 %		Disston'sPrices on applic'n	
14 and 16-oz. Copper, all de-		PRIMERS.		REVOLVERS.		Pruning.	
signsList.		See Ammunition.		Iver Johnson Safety Automatic		Disston'sPrices on applic'n	
Portico Elbows.		PRUNERS.		HammerNew Nets		Stairbuilders'.	
Galvanized and Terne Steel.		Disston's Pole.....per doz. \$18 60		Hammerless "		E. C. Atkins & Co.	
1-inch35 %		Water's Improved...per doz. 60 %		I. J. Model 1900..... "		Disston'sPrices on applic'n	
1 1/4-inch35 %		PULLERS.		RINGS AND RINGERS.		Wood.	
1 1/2-inch35 %		Cork.		Blair's Ringsper doz. \$ 75		E. C. Atkins & Co.	
2-inch35 %		Daisyeach, \$2 10		Blair's Ringers..... " 1 00		Disston'sPrices on applic'n	
Tubing25 %		Phoenix " 1 40		Brown's Rings..... " 72		SAW BUCKS—See Bucks.	
Discounts on Round apply on		Quick and Easy ... " 2 70		Brown's Ringers..... " 1 00		SAW SETS—See Sets.	
sizes 2-inch to 6-inch inclusive.		PULLEYS.		Hill's Rings..... " 1 00		SAW TOOLS—See Tools.	
Freight allowed on 15 dozen or		Awning—Jap'd10 %		Hill's Ring, boxes " 72		SAW FRAMES.	
more, to all points where		Clothes Line10 %		Major Rings..... " 60		Common, plain...per doz. \$1 50	
freight rate does not exceed		Hay Fork.		Perfect Ringers..... " 1 50		Common painted.. " 2 10	
\$1.00 per 100 lbs. Less than		Iron Wheel, 5-in..per doz. 2 50		Wolverine Ringers.. " 1 65		SCALES.	
15 dozen F. O. B. Factory.		Wood Wheel, 5-in " 2 65		Wolverine Ringers " 1 10		Pelouze40 & 10 %	
Terms: 30 days net, 2 % ten days.		Wood Wheel, 6-in.,		Fruit Jar.		SCISSORS.	
Standard Gauge Conductor Pipe,		pass knot..... " 3 00		Whiteper lb. 30 c		Star60 %	
plain or corrugated.		Sash.		Key.		SCOOPS.	
Not Nested35-5 %		CommonNet		Split, roundper doz. \$0 17		Grain.	
Nested solid40 %		Common-Sense, 2-in.....Net		Split, square " 32		1/2 bu "Hercules"...per doz. 3 70	
Stove.		Empire Pattern, 2-in.....Net		Ball, round " 40		1-bu. "Hercules"... " 5 00	
Per 100		IdealNet		RIVETS.		SCRAPERS.	
Joints		SteelNet		Copper Belt....Add 15 % to list		Triangular, No. 6 per doz. \$6 25	
29 Gauge, 3-inch.....\$19 00		PUMPS.		Coppered Iron30 %		SCREEN DOOR HINGES.	
" 4-inch.....19 50		Pitcher Spout.		Tinners'30 %		Cast irongross, \$13 00	
" 5-inch.....20 25		Nos..... 1 2 3 4		Hameper lb. \$0 17		Steel " 9 50	
" 6-inch.....21 00		EachNets		Slotted Clinch...per doz. 60 @ 1 10		SCREWS.	
" 7-inch.....23 00		Spray.		Tubular.		Iron, ins. 1 1 1/4 1 1/2	
T-Joint Made up.		Midget Junior.....per doz. 3 75		Nos. 1 and 2 assorted sizes,		\$6 32 \$7 37 9 45 16 80	
6-inchper 100 \$60 00		New Misty " 6 00		50 in box.....doz. 75c		Wood, white maple, per doz. 6 00	
Furnace Pipe.		Crescent " 6 50		Nos. 1 and 2 assorted sizes,		Hand—Wood50 %	
Double Wall Pipe and Fit-		PLANES.		10 in box.....doz. 1 40		Hand Rail2 %	
tings15 %		Stanley Iron Bench.....net		RIVET SETS.		Jack20 %	
Single Wall Pipe, Round		PLATES, TIN.		See Sets.		Lag or Coach—all sizes, gimlet	
Pipe Fittings15 %		See Metals in Column 1.		ROPE.		pointed45-5 %	
Galvanized and Black Iron		PLIERS.		1/4, 5-16 in. Com. on reels,		Saw—Centennial.	
Pipe, Shoes, etc.....10 %		Giant, Button's—Nets.		per lb.85c		Nos..... 1 2 3 4	
PLANES.		Outting.		1/4, 5-16 in. Com. in coils,		Per doz47c 55c 75c 90c	
Stanley Iron Bench.....net		Bernard'sNew Prices		per lb.85c		Wood.	
PLATES, TIN.		LodiNew Prices		Sisal.		F. H. Bright.....67 1/2-20 %	
See Metals in Column 1.		ParagonNew Prices		1st Quality18 1/4 c		F. H. Blued.....65-20 %	
PLIERS.		PUMPS.		No. 217 1/4 c		F. H. Jap'd.....65-20 %	
Giant, Button's—Nets.		Pitcher Spout.		Pure Manila.		F. H. Brass.....57 1/2-20 %	
		Nos..... 1 2 3 4		1st Quality, base...per lb. 28 1/4 c		R. H. Brass.....35 1/2-20 %	
		EachNets		Hardware Grade....per lb. 27 1/2 c		SCYTHES.	
		Spray.		RULES.		Clipper, Grassper doz. \$13 00	
		Midget Junior.....per doz. 3 75		Prices on application		Honest Cutdman... " 15	
		New Misty " 6 00		Lufkin's Hickory Board.... " "			
		Crescent " 6 50		Lufkin's Log " "			
				Lufkin's Boxwood " "			
				Lufkin's Zigzag " "			

SETS.		SPRINKLERS, LAWN.		TAPES, MEASURING.		WARE.	
Nail.		Stearns' No. 1.....per doz. \$11.50		Asses' Skin.....List & 40%		Glue Pots.	
Square head.....per doz. \$1 25		SQUARES.		Lufkin's Steel...Prices on applic'n		Tinned.....Add 15% to list	
Cup point, knurled " 1 15		Steel and Iron.....Nets new list		Lufkin's Metallic Prices on applic'n		Enameled.....30%	
Rivet.		(Add. for bluing, \$3.00 per doz. net)		THERMOMETERS.		WASH BOARDS—See Boards	
Farmers'.....per doz. \$2 10		Mitre.....		Tin Case.....per doz. 80c @ \$1 25		WASHERS.	
Tinnings.....25%		Try.....		Wood Back... " \$2 00 @ 12 00		Standard O. G. cast iron, per	
Saw.		Try and Bevel.....		Glass..... 12 00		lb.....3%	
Alken's Pattern...per doz. \$6 50		Try and Miter.....		TIES.		Wrought steel in 5-lb. boxes,	
Daston's Monarch " 7 20		Nets		Bale.		per lb.:	
Daston's X-Cut... 13 50		Fox's.....per doz. \$6.00		Single Loop, carload		In 3/16 1/4 5/16 3/8 1/2	
Leach's..... 30		Winterbottom's.....10%		lots		11c 11c 11c 11c	
Nash's Hand..... 3 15		SQUEEZERS, LEMON.		Single Loop, less than		WEDGES.	
Nash's X-Cut..... 4 20		Common Wood.....per doz. \$0 70		car lots.....70&15%		Ax.....per doz. Nets	
Stillman's Lever... 1 30		Porcelain Lined, Wood " 1 25		TOOLS, SAW.		Galling.....per lb. Nets	
Stillman's X-Cut... 2 50		Boss, malleable iron " 1 20		Daston's Universal.....40%		Saw.....per lb. 8%	
Whiting Pattern, No. 21..... 7 50		Iron frame, porc'n " 1 90		TRAPS.		WEANERS.	
Eccentric Anvil, Hand No. 395, N. P. Morrill Pattern..... 14 50		Iron frame, glass " 2 35		Game with Chains. Per doz.		Calf.	
SHARPENERS, SKATE.		Little Giant, tin'd " 4 00		Victor No. 1.....\$2 01		Fuller's, per doz..\$2 00 to \$2 50	
Diamond.....per doz. \$1 60		Drum, Japanned..... 2 60		Oneda Jump No. 1.....2 75		Tyler's Safety, per	
Perfect.....1 20		Drum, nickel plated " 4 50		Newhouse No. 1.....6 62		doz.....1 85 to 2 40	
SHEARS.		STAPLES.		Mouse and Rat Net per gross		Carroll's, per doz. 3 00 to 3 75	
Nickel Plated, Straight, Per Doz.		Blind.		Out O'Sight Mouse.....\$ 8 00		Hoosier, per doz.. 3 50 to 4 60	
" " " 7 " 14 85		Barbed.....per lb. 21 @ 22c		" " Rat.....15 00		Shaw Perfected.. 3 00 to 3 75	
Japanned, Straight " 6 " 11 00		Butter, Tub..... 16 @ 19c		" " Mole.....100 00		WEIGHTS.	
" " " 7 " 12 40		Fence—		#44 Pocket Gopher.....20 00		Hitching.....per lb. Nets	
" " " 8 " 13 80		Polished.....per 100 lbs. \$5 45		Victor Mouse.....2 60		Sash—f.o.b. Chicago	
Tinnings—See Snips.		Galvanized..... 6 15		Hold Fast Mouse.....11 00		Ton lots, per ton.....\$75 00	
SHEAVES, SLIDING DOOR.		Netting.		Victor Rat.....11 00		Smaller lots, per ton.... 75 00	
Common.		Galvanized.....per 100 lbs. \$ 50		Official Rat.....13 50		WHEEL BARROWS.	
Inches..... 3 4 5		Wrought.		Wood Choker Mouse, 4		No. 4 Tubular Steel.....@ \$10 25	
Per set.....\$1 40 1 75 2 40		Wrought Staples, Hasps and		Holes..... 11 00		Common Tray or Stave	
Hatfield's.		Staples, Hasps, Hooks and		TROWELS.		Tray.....@ 5 00	
Per set..\$1 80 2 10 2 75 25		Staples, and Hooks and		Brick.		Angle leg, garden.....@ 8 00	
SHELLS—See Ammunition.		Staples.....50&10%		Clover Leaf.....30%		WHEELS.	
SHELLERS, CORN.		Extra heavy.....35%		Brade's.....15&5%		Carborundum.....50%	
Union.....per doz. \$6 75		STEELYARD.		Daston's.....30%		Emery.....50%	
SHIELDS		Discount 25%.		Rose's.....Net		Well, Ins..... 8 10 12	
pansion Bolt Shields.....60%		STONES.		Plasterers'.		Per doz.....\$5 50 7 25 8 50	
SHOES.		Axe.		Clover Leaf.....40%		12-in. heavy hoisting,	
Conductor.....60%		Hindustan.....per lb. New Nets		Daston's.....25%		per doz.....\$25 00	
SHOT—See Ammunition.		More Grit..... " "		W. & McP.....Net		WIRE.	
SHOVELS AND SPADES		Washita..... " "		TRUCKS.		Brass.	
Coal.		Emery.		Bag.....each \$3 75		In coils.....Nets	
No. 2 Woodford...per doz. \$5 50		No. 126.....per doz. New Nets		Warehouse or store.		In 1-lb. spools, new list....Nets	
No. 182..... 6 00		Oil—Mounted.		No. 1, each.....\$24 50		Broom—Tinned.....Nets	
Ames', new list..Discount, 12 1/2%		Arkansas Hard		No. 2, ".....22 50		Cable—Same Price as Barbed Wire.	
Per doz.		Arkansas Soft.. " "		TUBS, WASH.		Copper.	
Neverbreak, hollow bck, blk, Nets		Washita No. 717..... " "		Standard, Wood.		In coils.....Nets	
National..... " "		Oil—Unmounted.		Nos..... 3 2 1 large		1-lb. spools, new list....Nets	
Buckeye..... " "		Arkansas Hard..per lb. New Nets		Per doz \$9 50 11 25 13 75 15 50		Fence—Smooth. An'ea'l Galv'd	
Mohawk..... " "		Arkansas Soft.. " "		Galvanized.		Nos. 6 to 9, less than	
Bar Drain & Ditching		Lilly White..... " "		No..... 1 2 3		per 100 lbs. \$4 25 \$4 95	
Iwan's Perfection.....\$30 00		Queer Creek..... " "		Per doz.....13 75 15 95 18 60		Hair—New List.....40 & 10%	
Railroad, etc.		Washita..... " "		TWINE.		Market	
Black Diamond....per doz. Net		Scythes.		-ply Cotton Wrapping....\$.85		Quotation	
Crescent..... " "		Black Diamond..per gro. New Nets		4 " " " " " " " "		Bright, full bds..... " "	
Keystone..... " "		Crescent..... " "		4 " " " " " " " "		Bright, broken bds.... " "	
Star..... " "		Green Mountain " " "		4 " " " " " " " "		Coppered, full bds.... " "	
Hollow Back..... " "		LaMolle..... " "		3 " " " " " " " "		Coppered, broken bds.. " "	
Ames', new list, Discount 12 1/2%		Extra Quinne- bog..... " "		4 " " " " " " " "		Tinned, full bds..... " "	
Snow.		Red End..... " "		India Hemp, 1/4-lb. balls,		Tinned, broken bds.... " "	
Galvanized, with wood han-		STOPS, BENCH.		No. 4 1/2.....36c		Picture—In coils..80% @ 80 & 10%	
dle, No. 56.....\$1 45		No. 10 Morrill pat-		No. 6.....35c		In 5-lb. spools....per lb.....26c	
No. 55..... 1 55		tern.....per doz. \$11 00		No. 8.....33c		WRENCHES.	
Alaska Steel		No. 11 Stearns pat-		No. 18.....		Coes Steel Handle, 6-inch.. 30%	
D-Handle.....per doz. \$3 50		tern..... 10 00		2-ply Jute, 1 1/2-lb balls, lb....49c		" " " " " " " " 30%	
Long Handle..... 3 00		No. 15 Smith pattern " 7 00		Seins.		" " " " " " " " 30%	
SINKS.		STOPPERS, FLUE.		Soft.....per lb.....Quotation		" " " " " " " " 30%	
Cast Iron.		Common.....per doz. \$1 10		Med..... " " " " " " " "		Coes Knife-Handle, 6- " 30%	
Painted, 16x24.....Net		Gem, flat, No. 3..... 1 00		Hard..... " " " " " " " "		" " " " " " " " 30%	
Enameled, White, 16x24.....		Gem, No. 1..... 1 10		Staging, 1/4-lb. ball, size 21 " " " " " " " "		" " " " " " " " 30%	
Wrought Steel.		STOVE PIPE—See pipe.		" " " " " " " " 27 " "		Coes All Patterns..... 30%	
Painted, 16x24.....		STOVE BOARDS—See Boards.		Bagging, 1/4-lb. ball, size		Bemis & Call's:	
SLEDGES—See Hammers.		STOVE POLISH—See Polish.		2-ply, "B" in hanks..... " "		Adjustable S, 10%; Adjustable S	
SNAPS, HARNESS		STRAPS.		4- " "B" " " " " " "		Pipe, 10%; Briggs' Pat-	
Covered Spring.....Add 30'		STRETCHERS.		3- " "A" " " " " " "		tern.....25%	
Judd's Pattern...Add \$3 1-6% to list		Carpet.		3- " Silver Finish, in hanks " "		Combination Bright.....10%	
SNATHS.		Bullard's.....per doz. \$3 90		Fodder or Lath.		Steel Handle Nut.....25%	
Double Ring, Bush..per doz. \$9 75		Excelstor..... 5 25		1 1/2 strand.....		Combination Black.....25&5%	
Patent Loop, Bush.. " 10 00		Malleable Iron..... 70		VISES.		Merrick Pattern.....25&5%	
Patent Loop, Grass.. " 8 75		Perfection..... 6 30		No. 21, Hand..... \$5 00		Knife Handle Pattern.	
SNIPS, TINNERS'		King..... 4 50		Oval Slide,		No. 62, Screw Wrench, List	
Clover Leaf.....40&10%		Wire.		Inches 2 3 1/2 4 1/2		plus.....5%	
National.....40&10%		O. S. Elwood, No. 1 per doz. Nets		Each \$2 70 \$3 20 \$3 60 \$4 20 \$5 75		No. 60, Steel Handle.	
Star.....50%		O. S. Elwood, No. 2 " "		No. 1, Genuine Wentworth,		WRINGERS.	
SOLDER—See Metals.		SWIVELS.		Noiseless Saw...per doz. 15 00		No. 790, Guarantee, per doz. \$69 00	
SPRINGS, DOOR.		Malleable Iron.....per lb. \$0 10		No. 2, Genuine Wentworth,		No. 770, Bicycle... 66 00	
Perfect.		Wrought Steel.....per gro. 4 50		Noiseless Saw...per doz. 22 50		No. 110, Domestic.. 59 00	
Nos..... 2 3 4 5 6 7		TACKS.		No. 3, Genuine Wentworth,		No. 110, Brighton.. 56 00	
Per doz. 55c 60c 65c 75c 90c 1 00		Bill Posters' 6-oz., 25 lb. boxes,		Noiseless Saw...per doz. 20 00		No. 740, Bicycle... 66 00	
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Chicago, Ill.

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Quick Meal Stove Co.,
St. Louis, Mo.
Turner Brass Works,
Sycamore, Ill.

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Philadelphia, Pa.

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Bemis & Call Hdw. & Tool Co.,
Springfield, Mass.

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Fanner Mfg. Co.,
Cleveland, Ohio

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Rock Island, Ill.

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Quick Meal Stove Co.,
St. Louis, Mo.
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Crestline, Ohio

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St. Louis, Mo.

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Chicago, Ill.

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Philadelphia, Pa.
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Philadelphia, Pa.
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Milwaukee, Wis.

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Co.,
Chicago, Ill.

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Philadelphia, Pa.
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Philadelphia, Pa.

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Chicago, Ill.

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president of the Guarantee Trust Company of New York, the largest trust company in the world, says:

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WANTS AND SALES

For paid yearly subscribers, **AMERICAN ARTISAN AND HARDWARE RECORD** will insert under this head advertisements of not more than fifty words **WITHOUT CHARGE**. Employers wishing to secure employes, parties desiring to purchase or sell business, secure partners, or to exchange, etc., will find that these pages offer excellent opportunities to satisfy their wants. Clerks and tinsmiths looking for situations will find it to their advantage to use these columns. Those who respond to these announcements please mention that they "READ THE ADVERTISEMENT IN AMERICAN ARTISAN AND HARDWARE RECORD."

BUSINESS CHANCES

Wanted—To hear from owner of good hardware store for sale. State price, description. D. F. Bush, Minneapolis, Minnesota. 14-1t

For Sale—One No. 24 Giblin hot water boiler, 1,800 ft. capacity. Fine condition. A bargain. Write to J. Oscar Smith, Moberly, Missouri. 12-3t

For Sale—One new 50 light pilot Acetylene Generator. Never been used. Price \$65.00. John Bauer, Plattsmouth, Nebraska. 13-3t

Wanted—A practical plumber or tinner with about \$3,000 to take an interest in an old established business. A good opening for the right man. Address Lock Box 31, Waterford, Ohio. 14-3t

For Sale—A sheet metal and plumbing shop, located in one of the best towns in Michigan. Doing good business. Lots of work on hand. Reason for selling, old age. Address M. Talmage, Scottville, Michigan. 14-3t

FOR SALE—Oster adjustable die stock, number six cuts from 2½ inch to 4 inch pipe in good condition. Price, \$35.00. Address L. O. Ketchum, Box 65, Milford, New York. 13-3t

For Sale—At a bargain, a No. 540 Myers Furnace. Wholesale price new \$400. Used one winter. Store building was burned down and never rebuilt. Furnace in good condition. Price \$125.00. A. E. Browder, Albion, Nebraska. 12-3t

For Sale—Complete equipment of tin shop consisting of machinery, tools of all descriptions, benches, stakes, iron racks, etc. We are going to discontinue our shop. Can be had at a bargain. Wahler Brothers, 2553 North Halsted Street, Chicago, Illinois. 13-3t

For Sale—Hardware and paint store. Established 26 years. A-1 location. Last year's sales \$21,000. Stock, fixtures and tools worth \$9,500. Rent with seven room flat \$50.00 per month. Reason for selling, going to Europe. Price, \$7,750. August Sletzt, 2567 Fullerton Avenue, Chicago, Illinois. 14-3t

For Sale—Plumbing and heating shop in small town in southeastern Nebraska. Fine territory to draw from. Reason for selling, am going west. Well equipped and priced at \$550.00. Fine chance for combination tinner and plumber. No other shop. D. G. Hull, Verdon, Nebraska. 12-3t

Wanted to Exchange—Farm of eighty acres, in Cumberland County, Illinois. Clear. For stock of hardware from five to seven thousand. Also three hundred acre farm in Jefferson County. It is well improved and practically all cultivated. Near towns on L. and N. R. R. Good opportunity for the right man. Address John W. Akins, Effingham, Illinois. 14-3t

HELP WANTED

Wanted—Tinner for factory work. State wages and experience. Messenger and Parks Manufacturing Company, Aurora, Illinois. 12-3t

HELP WANTED

Wanted—Hardware Clerk. Wood Hardware Company, Janesville, Wisconsin. 13-3t

Wanted—A first-class tinner and furnace man. A. C. Vieth and Sons, Oakland, Iowa. 13-2t

Wanted—First-class sheet metal and furnace man. \$1.00 per hour and steady work. The Lindas Company, Kenosha, Wisconsin. 12-3t

Wanted—Good all around tinner and furnace man. Steady job to right man. \$1.00 per hour. Address J. H. Barnett, Dodge City, Kansas. 13-3t

Wanted—Tinner. Could use young man with some experience in shop and outside work. Address T. B. Shannon Company, Iola, Kansas. 13-3t

Wanted—Four tinner and furnace man. One dollar per hour. Benton Sheet Metal and Furnace Works, 122 Water Street, Benton Harbor, Michigan. 14-3t

Wanted—A first-class sheet metal worker for general job work. \$1.00 per hour. Union shop. John B. Wallig, 307 Church Street, Kenosha, Wisconsin. 13-3t

Wanted—First-class sheet metal workers. Steady employment. \$8.00 per eight hour day. Open shop. W. J. Corbett Hardware Company, Tucson, Arizona. 13-3t

Wanted—A-1 auto radiator repair man. Steady job if you are the right one. Married man and a Catholic preferred. James T. Weaver, 315 Center Street, Little Rock, Arkansas. 12-3t

Wanted—A good combination tinner and plumber. Good wages and steady job for right man. State experience and wages wanted. Frank L. Wilson, Mechanicsville, Iowa. 12-3t

Wanted—A good combination tinner and plumber. Good wages and steady job for the right man. State experience and wages wanted in first letter. Winzer Brothers, Troy, Kansas. 14-3t

Wanted—Sheet metal workers on automobile bodies. Eight-hour day and good pay. Must be an average mechanic. Bakers Auto Body Works, 1302 Fostoria Street, Tulsa, Oklahoma. 14-3t

Wanted—First-class furnace men, capable of handling any kind of installation. Steady work. G. E. Blockie Heating Company, 122 West First Street, Oklahoma City, Oklahoma. 14-3t

Wanted—Two first-class sheet metal workers, two first-class pre-war sheet metal workers. \$1.25 per hour. Wire when you can come. H. H. Bain Sheet Metal Works, Shreveport, Louisiana. 13-3t

Wanted at Once—An A-1 combination tinner, furnace, plumber and fitter. Married man preferred. Come at once. Will give the right man steady work the year round at 75c per hour. A. L. Spradling, Hoopeston, Illinois. 13-3t

Wanted—Experienced plumber and furnace man. Must be of good clean habits and capable to take care of shop. Steady work the year around. Will be ready for work about October 15th. State wages, etc., in first letter. Rickler's Hardware, Monticello, Iowa. 12-3t

Wanted—Two or three first class sheet metal workers. Either men who have had experience on cornice, skylight or ventilating work. No dubs wanted, but men who can do as much as the other fellow. Two to three months' steady work. Write or wire before coming. Foster Metal Products Company, 217 South 4th Street, Springfield, Illinois. 14-3t

SITUATION WANTED.

Situation Wanted—By middle-aged man. Am thoroughly familiar with the heating business in all its branches; also efficient in the plumbing line. Can do estimating and selling. Address B-39, care of AMERICAN ARTISAN AND HARDWARE RECORD, 620 South Michigan Avenue, Chicago, Illinois. 14-3t

Situation Wanted—By plumber with state license. Can also do any kind of warm air heating and estimate jobs. Will erect windmills and do pump work if necessary. Have had sixteen years' experience. Kindly address B-38, care of AMERICAN ARTISAN AND HARDWARE RECORD, 620 South Michigan Avenue, Chicago, Illinois. 14-3t

SITUATION WANTED

Situation Wanted—By young man 29 years old. Has had six years' experience in general hardware. Best reference. Reasonable salary. Address L. B. Box 42, Traer, Iowa. 14-1t

Situation Wanted—By a first-class all around tinner and furnace man with some good reliable firm in town of from five to twenty thousand. Address 10 New Street, Mt. Clemens, Michigan. 11-3t

Situation Wanted—By good reliable tinner and furnace man. Can also do plumbing and lead work. Am a first class worker. Must be steady job at \$42.00 per week. Please address B-37, care of AMERICAN ARTISAN AND HARDWARE RECORD, 620 South Michigan Avenue, Chicago, Illinois. 14-3t

Situation Wanted—By tinner with knowledge of plumbing. Have had 16 years' experience. Can do estimating. Have taken care of my own shop for several years. I will sign a yearly contract with a good honest man. I prefer West. Write giving particulars as to wages, living conditions, etc. L. Phillips, Masonic Club, Akron, Ohio. 11-4t

Situation Wanted—By first-class sheet metal worker. Have had ten years' experience in some of the largest heating and ventilating shops in the country. Can lay out patterns, make estimates and capable of taking charge of shop. Have also had plumbing experience. Address B-36, care of AMERICAN ARTISAN AND HARDWARE RECORD, 620 South Michigan Avenue, Chicago, Illinois. 14-3t

Situation Wanted—By first-class sheet metal worker and pattern cutter with 14 years' experience. Am 32 years old. Have had experience in cornice skylight, furnace, mill elevator work and manufacturing. Can read blue prints and lay out work from same. Am strictly sober, reliable and a competent workman. Am a union man. Will consider nothing less than \$1.00 an hour and steady inside work. Would like to get a position with a large firm where there is a chance for advancement. Please address B-31, care of AMERICAN ARTISAN AND HARDWARE RECORD, 620 South Michigan Avenue, Chicago, Illinois. 11-3t

TINNERS' TOOLS

For Sale—New Niagara large burring machine, \$15.00. George C. Crouch, 25 Market Square, Chattanooga, Tennessee. 14-3t

Wanted—To buy eight foot square shears, foot power. Must be in good condition. Kindly address B-35, care of AMERICAN ARTISAN AND HARDWARE RECORD, 620 South Michigan Avenue, Chicago, Illinois. 13-3t

Wanted—A complete set of tinner's tools. State what you have and price in first letter. Address B-34, care of AMERICAN ARTISAN AND HARDWARE RECORD, 620 South Michigan Avenue, Chicago, Illinois. 13-3t

BOOKS.

Wanted—Men who know their trade from A to Z. That's the way the advertisements for Help Wanted start. You can learn more about your trade if you read good books on the subjects you are less familiar with. For a book covering the subject of Warm Air Heating thoroughly, you should read Snow's Furnace Heating, 234 pages. Price \$2.50. With AMERICAN ARTISAN one year (52 issues), \$3.85. Order your copy today from AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois.

Wanted—Warm Air Heater Installers to read PROGRESSIVE FURNACE HEATING. A practical manual of designing, estimating and installing modern systems for heating and ventilating buildings with warm air. Profusely illustrated. The whole range of the subject is concisely and fully covered. There is nothing highly technical in this book, no methods not easily comprehended and applied. Size, 6x9 inches, 280 pages, 189 illustrations. By Alfred G. King. Price, \$3.00. With AMERICAN ARTISAN one year (52 issues), \$4.25. Get a copy of this book now. Read it in your spare time and learn more about your important business. All books sent prepaid. No books exchanged. AMERICAN ARTISAN, 620 South Michigan Boulevard, Chicago, Illinois.